

This document gives pertinent information concerning the reissuance of the Virginia Pollutant Discharge Elimination System (VPDES) Permit listed below. This permit is being processed as a Minor, Industrial permit. The discharges are comprised of storm water runoff which has come in contact with industrial activities from various sources on Naval Support Facility Dahlgren. This permit action consists of updating the proposed effluent limits to reflect the current Virginia Water Quality Standards (effective January 6, 2011) and updating permit language as appropriate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards (WQS) of 9VAC25-260 et seq.

1. Facility Name and Mailing Address: Naval Support Facility Dahlgren
18329 Thompson Road, Suite 226
Dahlgren, VA 22448
SIC Code : 9711 – National Security
Facility Location: 2 Miles East of Route 301 and 206
Dahlgren, VA 22448
County: King George
Facility Contact Name: Ms. Brenna White
Telephone Number: (540) 653-2341
Facility E-mail Address: brenna.white@navy.mil
2. Permit No.: VA0073636
Expiration Date of Previous Permit: June 3, 2013
Other VPDES Permits associated with this facility: VA0021067, VAN010041
Other Permits associated with this facility: Air – Registration Number 40307 (Title V)
Hazardous Waste – VA7170024684
E2/E3/E4 Status: Not Applicable
3. Owner Name: United States Department of the Navy
Owner Contact/Title: Ms. Brenna White /
Water Media Manager
Telephone Number: (540) 653-2341
Owner E-mail Address: brenna.white@navy.mil
4. Application Complete Date: January 24, 2013
Permit Drafted By: Susan Mackert
Date Drafted: July 9, 2013
Draft Permit Reviewed By: Alison Thompson
Date Reviewed: July 17, 2013
WPM Review By: Bryant Thomas
Date Reviewed: August 8, 2013
Public Comment Period : Start Date: November 5, 2013
End Date: December 4, 2013
5. Receiving Waters Information: Outfall 002 / Outfall 006 / Outfall 014*
Receiving Stream Name: Upper Machodoc Creek
Waterbody ID: VAN-A30E
Drainage Area at Outfalls: < 5 square miles
River Mile: 0.17 (Outfall 002) / 0.43 (Outfall 006)
Stream Basin: Potomac River
Stream Code: 1aUMC
Section: 2
Subbasin: Potomac River
Special Standards: a
Stream Class: II
*Outfall 014 was added as a result of the reissuance site visit and is not accounted for within the planning statement. As such, river miles are not presented.
Receiving Waters Information: Outfall 004 / Outfall 009**
Receiving Stream Name: Upper Machodoc Creek, UT***
Waterbody ID: VAN-A30R
Drainage Area at Outfalls: < 5 square miles
River Mile: 0.29 (Outfall 004) / 0.05 (Outfall 009)
Stream Basin: Potomac River
Stream Code: 1aXMO
Section: 2a
Subbasin: Potomac River
Special Standards: None
Stream Class: III

Receiving Waters Information: Outfall 004 / Outfall 009** (Continued)

**A component of the reissuance process involves a review of outfall information by DEQ planning staff. Based on this review, Outfall 004 was determined to discharge to Upper Machodoc Creek, UT. This differs from information that appears in the application package.

***UT – Unnamed Tributary

Receiving Waters Information: Outfall 013

Receiving Stream Name:	Upper Machodoc Creek, UT	Waterbody ID:	VAN-A30R
Drainage Area at Outfalls:	< 5 square miles	River Mile:	0.3
Stream Basin:	Potomac River	Stream Code:	1aXMP
Section:	2a	Subbasin:	Potomac River
Special Standards:	None	Stream Class:	III

Receiving Waters Information: Outfall 003 / Outfall 007****

Receiving Stream Name:	Gambo Creek	Waterbody ID:	VAN-A30E
Drainage Area at Outfalls:	< 5 square miles	River Mile:	0.15 (Outfall 003) / 0.31 (Outfall 007)
Stream Basin:	Potomac River	Stream Code:	1aGAM
Section:	2	Subbasin:	Potomac River
Special Standards:	a	Stream Class:	II

****A component of the reissuance process involves a review of outfall information by DEQ planning staff. Based on this review, Outfall 003 was determined to discharge to Gambo Creek. This differs from information that appears in the application package.

Receiving Waters Information: Outfall 012

Receiving Stream Name:	Black Marsh, UT	Waterbody ID:	VAN-A30R
Drainage Area at Outfalls:	< 5 square miles	River Mile:	0.47
Stream Basin:	Potomac River	Stream Code:	1aXMN
Section:	1a	Subbasin:	Potomac River
Special Standards:	None	Stream Class:	III

Receiving Waters Information: The flow frequencies below are applicable to all Stream Class II outfalls*.

7Q10 Low Flow:	Tidal	7Q10 High Flow:	Tidal
1Q10 Low Flow:	Tidal	1Q10 High Flow:	Tidal
30Q10 Low Flow:	Tidal	30Q10 High Flow:	Tidal
Harmonic Mean Flow:	Tidal	30Q5 Flow:	Tidal

*Tidal receiving waters do not have critical flow analyses. For all other receiving waters it is staff's best professional judgement that based on a drainage area of five square miles or less, critical flows will be equal to zero.

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

<input checked="" type="checkbox"/> State Water Control Law	<input type="checkbox"/> EPA Guidelines
<input checked="" type="checkbox"/> Clean Water Act	<input checked="" type="checkbox"/> Water Quality Standards
<input checked="" type="checkbox"/> VPDES Permit Regulation	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> EPA National Pollutant Discharge Elimination System (NPDES) Regulation	

7. Licensed Operator Requirements: Not Applicable (Industrial Discharge)

8. Reliability Class: Not Applicable (Industrial Discharge)

9. Permit Characterization:

<input type="checkbox"/> Private	<input checked="" type="checkbox"/> Effluent Limited	<input checked="" type="checkbox"/> Possible Interstate Effect
<input checked="" type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input type="checkbox"/> Whole Effluent Toxicity Program Required	<input type="checkbox"/> Interim Limits in Permit
<input type="checkbox"/> WTP*	<input type="checkbox"/> Pretreatment Program Required	<input type="checkbox"/> Interim Limits in Other Document
<input checked="" type="checkbox"/> TMDL*	<input checked="" type="checkbox"/> e-DMR Participant	

*WTP = Water Treatment Plant

*TMDL = Total Maximum Daily Load

10. Industrial Process Wastewater and Storm Water Sources Description:

Naval Support Facility (NSF) Dahlgren is used for Defense Research and Development by several Navy and Defense Commands. NSF Dahlgren is comprised of two separate sites: the Mainside, consisting of 2,678 acres located between Route 301 and Upper Machodoc Creek and the Explosive Experimental Area (EEA), known as NSF Pumpkin Neck, consisting of 1,614 acres south of Upper Machodoc Creek. Facilities on the Mainside are used primarily for support (e.g., public works, supply, etc.), administration, research and development, housing, and community support activities. The Mainside also contains areas used for air operations and areas where a variety of ordnance categories are tested. NSF Pumpkin Neck contains areas used for a variety of ordnance testing.

Naval Support Facility (NSF) Dahlgren and NSF Pumpkin Neck discharge industrial process wastewater and storm water associated with industrial activities from the outfalls listed below.

Outfall 002 (Main Range)

The storm water discharged from this outfall is influenced by the industrial activities taking place within the drainage area. The drainage area includes paved surfaces near the triple gun mount and seven below grade gun mount sumps. Water collected in the gun sumps is pumped manually, using a bag filter capable of removing oil residue, or with a float-controlled sump pump. At the time of the site visit, only one gun mount and sump was active. Two thirds of the main range area drains to Outfall 002.

Outfall 003 (North Main Range)

The storm water discharged from this outfall is influenced by the industrial activities taking place within the drainage area. The drainage area includes both paved and unpaved surfaces as well as one below grade gun mount sump. Water collected in the gun sump is pumped manually, using a bag filter capable of removing oil residue, or with a float-controlled sump pump. Additionally, there is an area of material storage to include metal components and railroad ties. One third of the main range area drains (subsurface) to Outfall 003.

Outfall 004 (Cooling Pond)

The storm water discharged from this outfall is influenced by the industrial activities taking place within the drainage area. The drainage area includes both paved and unpaved surfaces within the following areas: transportation, public works, base housing, base administration, labs and other technical operations. The cooling pond formerly supplied non-contact cooling water to two large generators. The generators have been taken out of service and the supply and discharge lines have been severed and capped.

Transformers that have been removed from service are stored within the public works area. The storage area is constructed of concrete and is within a containment berm. The area is graded such that storm water flows to one corner where it can be released for discharge to Outfall 004 by removing a drain plug. See Section 17.c.4 of the Fact Sheet for additional information.

Vehicle maintenance in the public works area is conducted within enclosed bays. The oil change trough is connected to the sanitary sewer system as well as both the indoor and outdoor car wash facilities.

The facility has two inactive runways which by default have become storage areas for equipment, trailers, extra items, and tires.

Outfall 006 (Yard Craft)

The drainage area includes paved and unpaved surfaces near the marina. The marina supports base river range operations. Minor repair and maintenance is conducted indoors and the boats, when not in use, are stored in a grassy area behind the marina. Waste oil and bilge water are collected and recycled.

Changes have been made within the drainage area that increase flow to the outfall, but there has been no addition of industrial activity. NSF Dahlgren has installed a lift station to move storm water runoff from an additional parking area as well as roof drainage. This flow travels through a vegetated swale prior to entering the discharge path for Outfall 006.

This outfall is tidally influenced making collection of a discrete storm water sample difficult. In cases such as this, it is recommended that the sampling point be relocated "upstream" to the next available location where the discharge can be sampled safely and without influence. This is contingent upon no other sources entering the discharge path between the outfall and the relocated sample point which could change the constituents of the discharge. Moving the sampling point for Outfall 006 "upstream" one manhole will allow NSF Dahlgren staff to collect a more appropriate sample. Flow from an employee parking lot does enter the discharge path between the outfall and the proposed relocated sample point. However, there is already parking lot runoff in the discharge before comingling with this flow. It is staff's best professional judgement that moving the sampling point "upstream" will not omit a contributing flow.

Outfall 007 (Terminal Range)

The storm water discharged from this outfall is influenced by the industrial activities taking place within the drainage area. The drainage area includes paved surfaces and below-grade gun mount sumps. One below-grade gun mount sump (#1 sump) is active. Three additional sumps are located adjacent to the #1 sump. The additional sumps are considered substantially similar to sump #1. Water collected in the gun sumps is pumped manually, using a bag filter capable of removing oil residue, or with a float-controlled sump pump.

Outfall 009 (Salt Dome)

The storm water discharged from this outfall is influenced by the industrial activities taking place within the drainage area. The drainage area includes exposed metal storage (including metal from the machine shop, electronic equipment, gun mounts, metal shavings and chips), outdoor vehicle and equipment storage, and a covered salt dome.

Outfall 012 (Churchill Range – Pumpkin Neck)

The drainage area includes the southern portion of the Open Burn/Open Detonation explosives test area. This area is a relatively flat piece of land located at NSF Pumpkin Neck. The area includes the Open Burn/Open Detonation (OB/OD) Units and the area used for research, development, testing and evaluation (RDT&E). The OB/OD Units operate under RCRA Subpart X interim status for the treatment of explosive hazardous waste.

Outfall 013 (Churchill Range – Pumpkin Neck)

The drainage area includes the northern portion of the Open Burn/Open Detonation explosives test area. This area is a relatively flat piece of land located at NSF Pumpkin Neck. The area includes the Open Burn/Open Detonation (OB/OD) Units and the area used for research, development, testing and evaluation (RDT&E). The OB/OD Units operate under RCRA Subpart X interim status for the treatment of explosive hazardous waste.

Outfall 014 (AA Fuze Range)

This outfall is being added to the permit with this reissuance. The drainage area includes paved surfaces near the triple gun mount and parking areas. It is staff's best professional judgement that with this reissuance the discharge pipe be recognized within the permit and authorized as a point source discharge. It is unlikely that there would be a discharge from this outfall. However, if there were a discharge it would be comprised of storm water from the aforementioned drainage area. Because discharge is unlikely, the installation will be only required to conduct quarterly visual examinations of storm water quality at this outfall in the event of discharge.

See Attachment 1 for the NPDES Permit Rating Worksheet.

TABLE 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment*	Average Flow	Outfall Latitude and Longitude ¹
002	Storm Water / Industrial Storm Water	BMP	0.00725 MGD	38° 19' 31.9" N 77° 01' 35.7" W
003	Storm Water / Industrial Storm Water	BMP	0.0083 MGD	38° 19' 45.7" N 77° 01' 28" W
004	Storm Water / Industrial Storm Water	BMP	0.175 MGD	38° 19' 21.9" N 77° 01' 56.3" W
006	Storm Water	BMP	Variable	38° 19' 11.2" N 77° 02' 2.2" W
007	Storm Water / Industrial Storm Water	BMP	0.005167 MGD	38° 20' 1.8" N 77° 01' 7.4" W
009	Storm Water	BMP	Variable	38° 19' 34.4" N 77° 01' 48.7" W
012	Storm Water	BMP	Variable	38° 18' 9.5" N 77° 01' 56" W
013	Storm Water	BMP	Variable	38° 18' 9.5" N 77° 02' 0.3" W
014**	Storm Water	BMP	Variable	Not Available

1. A component of the reissuance process involves a review of outfall information by DEQ planning staff. Based on this review, Dahlgren was asked to confirm the outfall coordinates which were provided within the application package. The latitude and longitude in Table 1 above have been updated to reflect those coordinates determined by DEQ planning staff and field verified by Dahlgren staff. These coordinates may differ from those found within the permit application. These coordinates are also found in Attachment 4.

*BMP – Best Management Practice

** Outfall 014 was added as a result of the reissuance site visit and is not accounted for within the permit application. Coordinates are not available.

See Attachment 2 for (Dahlgren Quad, DEQ #181D) topographic map.

11. Solids Treatment and Disposal Methods:

This permit covers the discharge of storm water associated with industrial activities from NSF Dahlgren and NSF Pumpkin Neck. This permit does not address the treatment of domestic sewage or the production of sewage sludge. The facility holds a separate permit for wastewater treatment operations (VA0021067) at NSF Dahlgren and NSF Pumpkin Neck.

12. Other Discharges in Vicinity of Facility Discharges:

TABLE 2

VA0021067	Naval Support Facility Dahlgren Wastewater Treatment Plant (Upper Machodoc Creek)
VA0026514	Dahlgren District Wastewater Treatment Plant (Lower Williams Creek)
VAR050866	B & M King George Auto Parts (Upper Machodoc Creek)

13. Material Storage:

A list of materials stored on site is maintained by, and can be made available from, NSF Dahlgren's Environmental Office. This list is available to regulatory agencies upon request. The list provides the storage location, quantity, and Material Safety Data Sheets (MSDS) for materials stored at NSF Dahlgren. Materials include those commonly associated with vehicle maintenance and repair for light industrial activities, such as, oils, lubricants, paint, solvents, antifreeze, brake fluid, battery acid, and transmission fluid.

14. Site Inspection:

Performed by Sharon Allen and Susan Mackert on March 21, 2013. The site visit can be found as Attachment 3.

15. Receiving Stream Water Quality and Water Quality Standards:**a) Ambient Water Quality Data**

- 1) Outfalls 002 and 006 discharge to the northern tidal portion of Upper Machodoc Creek. The following is the water quality summary for tidal Upper Machodoc Creek, as taken from the Draft 2012 Integrated Assessment*:

Class II, Section 2, special stds. a.

Assessment of the submerged aquatic vegetation (SAV) acreage indicates that the shallow-water submerged aquatic vegetation subuse is not met; the aquatic life use is considered not supporting. A TMDL has been completed for the Chesapeake Bay watershed. For the open water aquatic life subuse; the thirty day mean is acceptable, however, the seven day mean and instantaneous levels have not been assessed.

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, Polychlorinated Biphenyls (PCB) fish consumption advisory. A PCB TMDL for the tidal Potomac River watershed has been completed and approved.

The recreation and wildlife uses were not assessed. The shellfishing use has been removed.

- 2) Outfalls 004 and 009 discharge to an unnamed tributary to Upper Machodoc Creek, which has not been monitored or assessed by DEQ. This unnamed tributary flows into the northern portion of tidal Upper Machodoc Creek. Water quality information for the northern tidal Upper Machodoc Creek is presented in Section 15.a.1 above.
- 3) Outfall 013 discharges to an unnamed tributary to Upper Machodoc Creek, located in the southern portion of the embayment. This unnamed tributary has not been monitored or assessed by DEQ. The following is the water quality information for the southern portion of tidal Upper Machodoc Creek, as taken from the Draft 2012 Integrated Assessment*:

Class II, Section 2, special stds. a.

Assessment of the submerged aquatic vegetation (SAV) acreage indicates that the shallow-water submerged aquatic vegetation subuse is not met; the aquatic life use is considered not supporting. A TMDL has been completed for the Chesapeake Bay watershed. For the open water aquatic life subuse; the thirty day mean is acceptable, however, the seven day mean and instantaneous levels have not been assessed. Additionally, for the deep-water subuse, the thirty day mean is acceptable, however, the one day mean and instantaneous dissolved oxygen levels have not been assessed. Finally, an observed effect was noted for the aquatic life use, as an excursion above the estuarine National Oceanic and Atmospheric Administration (NOAA) based Effect Range – Median (ER-M) sediment screening value (SV) of 7 ppb (dry weight) for dichlorodiphenyltrichloroethane (DDT) in sediment was detected during a sampling event at station 1aUMC001.36 in 2004.

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory and fish tissue monitoring. Additionally, excursions above the fish tissue values (TV) of 300 ppb for mercury (Hg) and 270 ppb for arsenic (As) were recorded in 2004 at monitoring station 1aUMC001.36, both in tissue from white perch, noted by observed effects for the fish consumption use. A PCB TMDL for the tidal Potomac River watershed has been completed and approved.

The shellfishing use is considered fully supporting.

The recreation and wildlife uses were not assessed.

- 4) Outfalls 003 and 007 discharge to the tidal portion of Gambo Creek. The following is the water quality summary for tidal Gambo Creek, as taken from the Draft 2012 Integrated Assessment*:

Class II, Section 2, special stds. a.

Assessment of the submerged aquatic vegetation (SAV) acreage indicates that the shallow-water submerged aquatic vegetation subuse is not met; the aquatic life use is considered not supporting. A TMDL has been completed for the Chesapeake Bay watershed. For the open water aquatic life subuse; the thirty day mean is acceptable, however, the seven day mean and instantaneous levels have not been assessed.

The fish consumption, recreation, and wildlife uses were not assessed.

b) 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

TABLE 3 – 303(d) Impairment and TMDL Information (Receiving Stream Segment)							
<i>Impairment Information in the Draft 2012 Integrated Report*</i>							
Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA**	Basis for WLA	TMDL Schedule
Upper Machodoc Creek	Fish Consumption	PCBs	004 – 0.29 mi 009 – 0.5 mi 013 – 0.3 mi	Tidal Potomac River PCB 10/31/2007	None	---	N/A
	Aquatic Life	Aquatic Plants (Macrophytes)		Chesapeake Bay TMDL 12/29/2010	This facility is accounted for in the Chesapeake Bay TMDL. It is included in the NPDES Permit Inventory and is part of an aggregated WLA for Total Nitrogen, Total Phosphorus, and Total Suspended Solids (Appendix Q).		
Gambo Creek	Aquatic Life	Aquatic Plants (Macrophytes)	---	Chesapeake Bay TMDL 12/29/2010			

*Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.

**WLA = Wasteload Allocation

TABLE 4 – 303(d) Impairment and TMDL Information (Downstream)

Impairment Information in Maryland's 2012 Integrated Report

Waterbody Name	Impaired Use	Cause	TMDL completed	WLA*	Basis for WLA	TMDL Schedule
Potomac River	Open-Water Fish and Shellfish	Total Nitrogen and Total Phosphorus	Chesapeake Bay TMDL 12/29/2010		This facility is accounted for in the Chesapeake Bay TMDL. It is included in the NPDES Permit Inventory and is part of an aggregated WLA for Total Nitrogen, Total Phosphorus, and Total Suspended Solids (Appendix Q).	
	Seasonal Migratory Fish Spawning and Nursery					
	Seasonal Deep-Water Fish and Shellfish					
	Seasonal Deep-Channel Refuge					
	Seasonal Shallow-Water Submerged Aquatic Vegetation	Total Suspended Solids				

*WLA = Wasteload Allocation

The full planning statement is found in Attachment 4. Because Outfall 014 was added with this reissuance as a result of the site visit, it is not included in the planning statement.

c) Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections.

1) *Upper Machodoc Creek and Gambo Creek*

Upper Machodoc Creek and Gambo Creek are located within Section 2 of the Potomac River Basin, and are classified as Class II waters. Class II tidal waters in the Chesapeake Bay and its tidal tributaries must meet dissolved oxygen concentrations as specified in 9VAC25-260-185 and maintain a pH of 6.0-9.0 standard units (S.U.) as specified in 9VAC25-260-50. In the Northern Virginia area, Class II waters must meet the Migratory Fish Spawning and Nursery Designated Use from February 1 through May 31. For the remainder of the year, these tidal waters must meet the Open Water use. The applicable dissolved oxygen concentrations are presented in Attachment 5.

2) *Unnamed Tributary to Upper Machodoc Creek and Unnamed Tributary to Black Marsh*

The UT to Upper Machodoc Creek and the UT to Black Marsh are located within Section 2a and Section 1a, respectively, of the Potomac River Basin and are classified as Class III waters. At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C, and maintain a pH of 6.0 - 9.0 standard units (S.U.).

3) *Potomac River*

The mainstem of the Potomac River is considered Maryland waters. While there is no direct discharge from NSF Dahlgren to the Potomac River, there is potential for the discharges to impact Maryland waters. The Potomac River, per the Maryland Water Quality Criteria, has been designated as Use II water. The use goals include the support of estuarine and marine aquatic life and shellfish harvesting. The dissolved oxygen (D.O.) may not be less than 5.0 mg/L at any time and a pH of 6.5 – 8.5 standard units (S.U.) must be maintained.

Attachment 6 details other water quality criteria applicable to the receiving stream.

Ammonia:

The fresh water, aquatic life Water Quality Criteria for Ammonia are dependent on the instream temperature and pH. The 90th percentile temperature and pH values are used because they best represent the critical design conditions of the receiving stream.

Ammonia, as N, is not a parameter of concern due to the fact the discharges are industrial in nature. As such, there is no reasonable potential to exceed the ammonia criteria and limit derivation is not warranted. Because ammonia is not a parameter of concern, a default receiving stream and effluent pH value of 8.0 S.U. and a default receiving stream and effluent temperature value of 25°C were used to establish the ammonia water quality standards. The ammonia water quality standards calculations are shown in Attachment 6.

Staff utilized salinity data from DEQ ambient monitoring station 1aUMC004.43 located at Route 218 (Windsor Drive). Staff reviewed salinity data from this monitoring station for the time period of January 2008 – June 2013 (Attachment 6). The mean salinity was determined to be 4.17 g/kg.

In utilizing default values for pH and temperature, as well as the most conservative value for flow of 0.0 MGD, the water quality criteria derivations in Attachment 6 are considered representative of all outfalls.

Metals Criteria:

The Water Quality Criteria for some metals are dependent on the receiving stream's hardness (expressed as mg/L calcium carbonate). The 7Q10 of the receiving streams are zero, no ambient data is available, and no effluent data is available. Staff guidance suggests using a default hardness value of 50 mg/L CaCO₃ for streams east of the Blue Ridge. The hardness-dependent metals criteria in Attachment 6 are based on this default value. In utilizing a default value for receiving stream and effluent hardness, as well as the most conservative value for flow of 0.0 MGD, the water quality criteria derivation is considered representative of all outfalls.

d) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia.

The receiving streams, Upper Machodoc Creek and Gambo Creek, located within Section 2 of the Potomac River Basin have been designated with a special standard of "a." According to 9VAC25-260-310.a, Special Standard a applies to all open ocean or estuarine waters capable of propagating shellfish or in specific areas where public or leased private shellfish beds are present, including those waters on which condemnation or restriction classifications are established by the State Department of Health. The fecal coliform bacteria standard is as follows: the geometric mean fecal coliform value for a sampling station shall not exceed an MPN (Most probable number) of 14 per 100 milliliters of sample and the 90th percentile shall not exceed 43 for a 5-tube, 3-dilution or 49 for a 3-tube, 3-dilution test. The shellfish are not to be so contaminated by radionuclides, pesticides, herbicides, or fecal material that the consumption of shellfish might be hazardous. This same standard is also contained in 9 VAC 25-260-160. Fecal Coliform Bacteria; Shellfish Waters. This standard is used for the interpretation of instream monitoring data and not for setting fecal coliform effluent limitations. Special standard "a" is not applied to these discharges since the discharges are industrial in nature and there is no reasonable potential for fecal coliform to be present in the discharges.

e) Maryland Water Quality Standards

The mainstem of the Potomac River is considered Maryland waters. There is potential for the discharges from NSF Dahlgren to impact Maryland waters. Staff has reviewed Title 26, Subtitle 08 of the Code of Maryland Regulations (Maryland Water Quality Standards) and believes that the effluent limitations established in this permit will comply with Maryland's water quality standards.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving streams, Upper Machodoc Creek, UT to Upper Machodoc Creek, and Gambo Creek have been classified as Tier 1 based on the noted impairments.

The receiving stream, UT to Black Marsh, has been classified as Tier 1 based on its being a tidal swamp fed by the Potomac River. Swamps, naturally, are expected to have dissolved oxygen (D.O.) concentrations below the Water Quality Standards for certain periods of time resulting in naturally occurring excursions. In addition, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. These nutrient enriched conditions are impacting Black Marsh during tidal fluxes and therefore, Black Marsh is considered a Tier 1 water.

Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:

Effluent data obtained from Attachment A monitoring, the permit application, and Discharge Monitoring Report (DMR) forms has been reviewed and determined to be suitable for evaluation.

The following pollutants require a wasteload allocation analysis: Arsenic, Copper, Lead, Mercury, Nickel, Thallium, and Zinc.

b) Tidal Water Quality Wasteload Allocations (Tidal WQWLAs):

The receiving streams, Upper Machodoc Creek, UT to Upper Machodoc Creek, UT to Black Marsh, and Gambo Creek, are all tidally influenced. The acute wasteload allocations are established by multiplying the acute water quality criteria by a factor of 2 unless there is site specific dilution data available. The two times factor is derived from acute criteria being defined as one half of the final acute value (FAV) for a specific toxic pollutant. The FAV is determined from exposure of the specific toxicant to a variety of aquatic species, and is based on the level of a chemical or mixture of chemicals that does not allow the mortality, or other specified response, of aquatic organisms. These criteria represent maximum pollutant concentration values, which when exceeded, would cause acute effects on aquatic life in a short time period. For chronic wasteload allocations a dilution of 50 is used unless there is site specific dilution data available. The above Tidal WQWLA determinations are consistent with the instructions found within DEQ Guidance Memo 00-2011.

A site specific dilution study was conducted in support of the facility's wastewater treatment plant permit (VA0021067) in 1992 and was revised in 1994. The modeling, and subsequently derived dilution factors, is based on a continuous discharge from the wastewater treatment plant. It is staff's best professional judgement that the site specific dilution factors derived for the wastewater treatment plant are not appropriate for use within this permit as these discharges are storm event dependent and not continuous. As such, a default acute dilution factor of 2:1 and a default chronic dilution factor of 50:1 shall be used (based on DEQ Guidance Memo 00-2011). Attachment 6 summarizes the wasteload allocation determinations.

c) Effluent Limitations – Industrial Influenced Outfalls

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from Publicly Owned Treatment Works (POTW) and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Outfall 002:

Total Petroleum Hydrocarbons (TPH):

Because there is the potential for oil residue from the gun sumps to be present in the discharge, the technology-based daily maximum TPH limit of 30 mg/L shall be carried forward with this reissuance. The limit is based on DEQ Guidance Memo 96-002 which recommends limits for facilities that handle petroleum products or where contamination by petroleum products is of concern. The quarterly monitoring frequency (1/3M) shall also be carried forward.

pH:

The minimum limit of 6.0 S.U. and the maximum limit of 9.0 S.U. shall be carried forward with this reissuance. Effluent pH limitations are set at the Virginia water quality criteria. It is staff's best professional judgement that because the discharge from this outfall is not directly to the mainstem of the Potomac River, the Maryland water quality criteria for pH need not be applied. The pH limitations established in this permit will protect and maintain water quality. The quarterly monitoring frequency (1/3M) shall also be carried forward.

Copper:

VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on storm water outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. As such, the previous reissuance of this permit established a monitoring endpoint of 19 ug/L for copper in lieu of an effluent limit as this is primarily a storm water driven discharge. Additionally, the permit required the facility to develop and submit to DEQ a Best Management Practices (BMP) plan for the reduction of metals contamination if copper concentrations at Outfall 002 exceeded the monitoring endpoint.

A review of DMR data from this permit cycle indicates that copper samples did exceed the established monitoring endpoint at Outfall 002 (Attachment 7). A BMP plan was not developed as a result of these exceedances. However, copper samples have not been analyzed properly over the course of this permit cycle. This includes the use of unapproved methods of analysis and the analysis of total recoverable copper rather than dissolved copper as required by the permit.

A reasonable potential analysis indicates the need for a copper limitation at Outfall 002 (Attachment 7). Given the limited valid copper monitoring data for this outfall, and the fact that it is primarily a storm water based discharge, it is staff's best professional judgement that the monitoring end-point of 19 ug/L be carried forward with this reissuance. An increase in monitoring frequency from annually to quarterly (1/3M) is proposed. Monitoring shall be in the form of dissolved copper.

Additionally, the facility shall develop and submit to DEQ a Best Management Practices (BMP) plan for the reduction of metals contamination if copper concentrations at Outfall 002 exceeded the monitoring endpoint. Please see Section 21.g of the Fact Sheet for additional information on the BMP plan requirements.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because of the establishment of a dissolved copper end-point, it is staff's best professional judgement that hardness monitoring also be implemented with this reissuance. A quarterly monitoring frequency (1/3M) is proposed.

2) Outfall 003

Total Petroleum Hydrocarbons (TPH):

Because there is the potential for oil residue from the gun sumps to be present in the discharge, the technology-based daily maximum limit of 30 mg/L shall be carried forward with this reissuance. The limit is based on DEQ Guidance Memo 96-002 which recommends limits for facilities that handle petroleum products or where contamination by petroleum products is of concern. The annual monitoring frequency (1/YR) shall also be carried forward.

pH:

The minimum limit of 6.0 S.U. and the maximum limit of 9.0 S.U. shall be carried forward with this reissuance. Effluent pH limitations are set at the Virginia water quality criteria. It is staff's best professional judgement that because the discharge from this outfall is not directly to the mainstem of the Potomac River, the Maryland water quality criteria for pH need not be applied. The pH limitations established in this permit will protect and maintain water quality. The annual monitoring frequency (1/YR) shall also be carried forward.

Copper:

Copper has not been monitored at Outfall 003. Because this outfall is associated with operations at the main range (as is Outfall 002), it is staff's best professional judgement that copper values be assessed at Outfall 003. As such, copper monitoring is proposed with this reissuance. Monitoring shall be in the form of dissolved copper. A semi-annual (1/6M) monitoring frequency is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because of the establishment of dissolved copper monitoring, it is staff's best professional judgement that hardness monitoring also be implemented with this reissuance. A semi-annual monitoring frequency (1/6M) is proposed.

3) Outfall 004

Total Petroleum Hydrocarbons (TPH):

Because petroleum products are used and/or found within the drainage area to this outfall, the technology-based daily maximum limit of 30 mg/L shall be carried forward with this reissuance. The limit is based on DEQ Guidance Memo 96-002 which recommends limits for facilities that handle petroleum products or where contamination by petroleum products is of concern. The annual monitoring frequency (1/YR) shall also be carried forward.

Total Suspended Solids (TSS):

A daily maximum limit of 60 mg/L shall be implemented with this reissuance. The limit is included to ensure proper operation and maintenance of the storm water retention pond. The limit was derived from requirements at other industrial facilities providing sedimentation of storm water runoff. An annual monitoring frequency (1/YR) is proposed.

pH:

The minimum limit of 6.0 S.U. and the maximum limit of 9.0 S.U. shall be carried forward with this reissuance. Effluent pH limitations are set at the Virginia water quality criteria. It is staff's best professional judgement that because the discharge from this outfall is not directly to the mainstem of the Potomac River, the Maryland water quality criteria for pH need not be applied. The pH limitations established in this permit will protect and maintain water quality. The annual monitoring frequency (1/YR) shall also be carried forward.

Polychlorinated Biphenyl Compounds (PCBs):

The facility stores transformers within the drainage area to this outfall. It is DEQ's understanding that Dahlgren staff have conducted testing of the transformers and that based on this testing, the transformers have been deemed PCB-free. DEQ staff has requested this data from the facility, but as of the date of permit drafting it has not been provided. Therefore, it is staff's best professional judgement NSF Dahlgren conduct low-level PCB monitoring at Outfall 004 with this permit reissuance. Monitoring is intended to better understand and characterize potential PCB discharges from this outfall.

The facility shall collect two samples from the discharge of Outfall 004 within the term of this permit. Samples shall be representative of a typical discharge from this outfall after a rain event. Monitoring and analysis shall be conducted in accordance with the most current version of EPA Method 1668, or other equivalent methods capable of providing low-detection level, congener specific results (all 209 PCB congeners). Any equivalent method shall be submitted to DEQ-NRO for review and approval prior to sampling and analysis. The sampling protocol shall be submitted to DEQ-NRO for review and approval prior to the first sample collection. It is the responsibility of the permittee to ensure that proper QA/QC protocols are followed during the sample gathering and analytical procedures.

Each sample shall consist of a minimum 2 liter volume.

The data shall be submitted to DEQ-NRO by the 10th day of the month following receipt of the results. The submittal shall include the unadjusted and appropriately qualified individual PCB congener analytical results. Additionally, laboratory and field QA/QC documentation and results shall be reported. Total PCBs are to be computed as the summation of the reported, quantified congeners.

4) Outfall 006

Total Petroleum Hydrocarbons (TPH):

Because petroleum products are used and/or found within the drainage area to this outfall, the technology-based daily maximum limit of 30 mg/L shall be carried forward with this reissuance. The limit is based on DEQ Guidance Memo 96-002 which recommends limits for facilities that handle petroleum products or where contamination by petroleum products is of concern. The semi-annual monitoring frequency (1/6M) shall also be carried forward.

Total Suspended Solids (TSS):

The daily maximum limit of 60 mg/L shall be carried forward with this reissuance. The semi-annual monitoring frequency (1/6M) shall also be carried forward.

pH:

The minimum limit of 6.0 S.U. and the maximum limit of 9.0 S.U. shall be carried forward with this reissuance. Effluent pH limitations are set at the Virginia water quality criteria. It is staff's best professional judgement that because the discharge from this outfall is not directly to the mainstem of the Potomac River, the Maryland water quality criteria for pH need not be applied. The pH limitations established in this permit will protect and maintain water quality. The semi-annual monitoring frequency (1/6M) shall also be carried forward.

Copper:

VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on storm water outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. As such, the previous reissuance of this permit established a monitoring endpoint of 19 ug/L for copper in lieu of an effluent limit. Additionally, the permit required the facility to develop and submit to DEQ a Best Management Practices (BMP) plan for the reduction of metals contamination if copper concentrations at Outfall 006 exceeded the monitoring endpoint.

A review of DMR data from this permit cycle indicates that copper samples did exceed the established monitoring endpoint at Outfall 006 (Attachment 8). A BMP plan was not developed as a result of these exceedances. However, copper samples have not been analyzed properly over the course of this permit cycle. This includes the use of unapproved methods of analysis and the analysis of total recoverable copper rather than dissolved copper as required by the permit.

A reasonable potential analysis indicates the need for a copper limitation at Outfall 006 (Attachment 8). Given the limited valid copper monitoring data for this outfall, and the fact that it is primarily a storm water based discharge, it is staff's best professional judgement that the monitoring end-point of 19 ug/L be carried forward with this reissuance. An increase in monitoring frequency from annually to quarterly (1/3M) is proposed. Monitoring shall be in the form of dissolved copper.

Additionally, the facility shall develop and submit to DEQ a Best Management Practices (BMP) plan for the reduction of metals contamination if copper concentrations at Outfall 006 exceeded the monitoring endpoint. Please see Section 21.g of the Fact Sheet for additional information on the BMP plan requirements.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because of the establishment of a dissolved copper end-point, it is staff's best professional judgement that effluent hardness monitoring also be implemented with this reissuance. A quarterly monitoring frequency (1/3M) is proposed.

5) Outfall 007

Total Petroleum Hydrocarbons (TPH):

Because there is the potential for oil residue from the gun sumps to be present in the discharge, the technology-based daily maximum limit of 30 mg/L shall be carried forward with this reissuance. The limit is based on DEQ Guidance Memo 96-002 which recommends limits for facilities that handle petroleum products or where contamination by petroleum products is of concern. The annual monitoring frequency (1/YR) shall also be carried forward.

pH:

The minimum limit of 6.0 S.U. and the maximum limit of 9.0 S.U. shall be carried forward with this reissuance. Effluent pH limitations are set at the Virginia water quality criteria. It is staff's best professional judgement that because the discharge from this outfall is not directly to the mainstem of the Potomac River, the Maryland water quality criteria for pH need not be applied. The pH limitations established in this permit will protect and maintain water quality. The annual monitoring frequency (1/YR) shall also be carried forward.

6) Outfall 009

Total Petroleum Hydrocarbons (TPH):

Because petroleum products are used and/or found within the drainage area to this outfall, a technology-based daily maximum limit of 30 mg/L is proposed with this reissuance. The limit is based on DEQ Guidance Memo 96-002 which recommends limits for facilities that handle petroleum products or where contamination by petroleum products is of concern. A semi-annual monitoring frequency (1/6M) is proposed.

Total Suspended Solids (TSS):

Because salt storage and movements are associated with the drainage area to this outfall, a daily maximum limit of 60 mg/L is proposed with this reissuance. A semi-annual monitoring frequency (1/6M) is proposed.

pH:

The minimum limit of 6.0 S.U. and the maximum limit of 9.0 S.U. is proposed with this reissuance. Effluent pH limitations are set at the Virginia water quality criteria. It is staff's best professional judgement that because the discharge from this outfall is not directly to the mainstem of the Potomac River, the Maryland water quality criteria for pH need not be applied. The pH limitations established in this permit will protect and maintain water quality. A semi-annual monitoring frequency (1/6M) is proposed.

Arsenic:

An analysis of the data provided with this reissuance indicates no effluent limit is necessary (Attachment 9). Because the reported data is below the quantification limit of 55 µg/L, it is staff's best professional judgement that monitoring for arsenic is not warranted.

Copper:

An analysis of the data provided with this reissuance indicates the need for a daily maximum copper limitation of 19 µg/L (Attachment 9). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on storm water outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. As such, dissolved copper monitoring shall be implemented with this reissuance. A semi-annual monitoring frequency (1/6M) is proposed.

Lead:

An analysis of the data provided with this reissuance indicates no effluent limit is necessary (Attachment 9). Because the reported data is below the quantification limit of 190 µg/L, it is staff's best professional judgement that monitoring for lead is not warranted.

Mercury:

An analysis of the data provided with this reissuance indicates no effluent limit is necessary (Attachment 9). Because the reported data is below the quantification limit of 1.4 µg/L, it is staff's best professional judgement that monitoring for mercury is not warranted.

Nickel:

An analysis of the data provided with this reissuance indicates no effluent limit is necessary (Attachment 9). While a limit is not warranted with this reissuance, it is staff's best professional judgement that monitoring be implemented as nickel is noted as being present in the discharge above the quantification limit. As such, dissolved nickel monitoring shall be implemented with this reissuance. A semi-annual monitoring frequency (1/6M) is proposed.

Thallium:

There are no Water Quality Standards that are applicable to the aquatic life designation for Thallium. As such, limit derivation is not applicable and monitoring for thallium is not warranted.

Zinc:

An analysis of the data provided with this reissuance indicates no effluent limit is necessary (Attachment 9). While a limit is not warranted with this reissuance, it is staff's best professional judgement that monitoring be implemented as zinc is noted as being present in the discharge above the quantification limit. As such, dissolved zinc monitoring shall be implemented with this reissuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because monitoring for dissolved copper, dissolved nickel, and dissolved zinc has been established, it is staff's best professional judgement that effluent hardness monitoring also be implemented with this reissuance. A semi-annual monitoring frequency (1/6M) is proposed.

Attachment A:

It is staff's opinion that there is reasonable potential for toxic pollutants to be discharged from Outfall 009. As such, Attachment A monitoring shall be carried forward with this reissuance. Monitoring shall be conducted in the third and fourth year of the permit cycle. Using Attachment A as the reporting form, the data shall be submitted with the next application for reissuance, which is due at least 180 days prior to the expiration date of this permit.

d) Effluent Limitations - Storm Water Outfalls

1) Outfall 012

The discharge from this outfall is comprised primarily of storm water runoff from the southern portion of the Open Burn/Open Detonation explosives test area. The drainage area is relatively flat and vegetated. It is staff's best professional judgement that the discharge from Outfall 012 will not impact water quality. As such, analytical monitoring is not proposed with this reissuance. Storm water shall be monitoring in accordance with Part I.D of the permit.

2) Outfall 013

The discharge from this outfall is comprised primarily of storm water runoff from the northern portion of the Open Burn/Open Detonation explosives test area. The drainage area is relatively flat and vegetated. It is staff's best professional judgement that the discharge from Outfall 013 will not impact water quality. As such, analytical monitoring is not proposed with this reissuance. Storm water shall be monitoring in accordance with Part I.D of the permit.

3) Outfall 014

This outfall is being added to the permit with this reissuance. The drainage area includes paved surfaces near the triple gun mount and parking areas. It is staff's best professional judgement that with this reissuance the discharge pipe be recognized within the permit and authorized as a point source discharge. It is unlikely that there would be a discharge from this outfall. However, if there were a discharge it would be comprised of storm water from the aforementioned drainage area. Because discharge is unlikely, storm water shall be monitoring in accordance with Part I.D of the permit.

e) Effluent Limitations and Monitoring Summary.

The effluent limitations are presented in the following table. Limits were established for Flow, pH, Total Suspended Solids, and Total Petroleum Hydrocarbons. Monitoring has been established for Dissolved Copper, Dissolved Nickel, Dissolved Zinc, and Total Hardness.

The limit for Total Suspended Solids is based on Best Professional Judgement.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

18. **Antibacksliding:**

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19a. Effluent Limitations/Monitoring Requirements: Outfall 002 (Main Range)

Average flow: 0.00725 MGD

Sources contributing to the discharge from Outfall 002 include: Storm Water and Gun Mount Sump Water.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MGD)	NA	NL	NA	NA	NL	1/3M	Estimate
pH	2	NA	NA	6.0 S.U.	9.0 S.U.	1/3M	Grab
Total Petroleum Hydrocarbons (TPH)*	1	NA	30 mg/L	NA	NA	1/3M	Grab
Copper, Dissolved	1	NA	NL (µg/L)	NA	NA	1/3M	Grab
Hardness, Total (as CaCO ₃)	1	NA	NL (mg/L)	NA	NA	1/3M	Grab
Acute Toxicity – <i>C. variegatus</i> (NOAEC)	1	NA	NA	NA	NL	1/3M	Grab
Acute Toxicity – <i>A. bahia</i> (NOAEC)	1	NA	NA	NA	NL	1/3M	Grab

The basis for the limitations codes are:

MGD = Million gallons per day.

1/3M = Once every three months.

1. Best Professional Judgement

NA = Not applicable.

2. Water Quality Standards

NL = No limit; monitor and report.

S.U. = Standard units.

1/3M = The quarterly monitoring periods shall be January 1 - March 31, April 1 - June 30, July 1 - September 30 and October 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (April 10, July 10, October 10 and January 10, respectively).

Total Petroleum Hydrocarbons Requirement:

* Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Dissolved Copper and Total Hardness Requirements:

*Dissolved copper and hardness samples shall be collected concurrently.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

19b. Effluent Limitations/Monitoring Requirements: Outfall 003 (North Main Range)

Average flow: 0.00833 MGD

Sources contributing to the discharge from Outfall 003 include: Storm Water and Gun Mount Sump Water.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MGD)	NA	NL	NA	NA	NL	1/YR	Estimate
pH	2	NA	NA	6.0 S.U.	9.0 S.U.	1/YR	Grab
Total Petroleum Hydrocarbons (TPH)*	1	NA	30 mg/L	NA	NA	1/YR	Grab
Copper, Dissolved	1	NA	NL (µg/L)	NA	NA	1/6M	Grab
Hardness, Total (as CaCO ₃)	1	NA	NL (mg/L)	NA	NA	1/6M	Grab

The basis for the limitations codes are:

1. Best Professional Judgement

2. Water Quality Standards

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months.

1/YR = Once every twelve months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).1/YR = The annual monitoring period shall be January 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (January 10).**Total Petroleum Hydrocarbons Requirement:**

* Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Dissolved Copper and Total Hardness Requirements:

*Dissolved copper and hardness samples shall be collected concurrently.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

19c. Effluent Limitations/Monitoring Requirements: Outfall 004 (Cooling Pond)

Average flow: 0.175 MGD

Sources contributing to the discharge from Outfall 004 include: Storm water from the following areas - transportation, public works, base housing, base administration, labs and other technical operations.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MGD)	NA	NL	NA	NA	NL	1/YR	Estimate
pH	2	NA	NA	6.0 S.U.	9.0 S.U.	1/YR	Grab
Total Petroleum Hydrocarbons (TPH)*	1	NA	30 mg/L	NA	NA	1/YR	Grab
Total Suspended Solids (TSS)	1	NA	60 mg/L	NA	NA	1/YR	Grab

The basis for the limitations codes are:

1. Best Professional Judgement

2. Water Quality Standards

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/YR = Once every twelve months.

1/YR = The annual monitoring period shall be January 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (January 10).**Total Petroleum Hydrocarbons Requirement:**

* Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

19d. Effluent Limitations/Monitoring Requirements: Outfall 006 (Yard Craft)

Average flow: Variable

Sources contributing to the discharge from Outfall 006 include: Storm water from the following area – marina.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MGD)	NA	NL	NA	NA	NL	1/6M	Estimate
pH	2	NA	NA	6.0 S.U.	9.0 S.U.	1/6M	Grab
Total Petroleum Hydrocarbons (TPH)*	1	NA	30 mg/L	NA	NA	1/6M	Grab
Total Suspended Solids (TSS)	1	NA	60 mg/L	NA	NA	1/6M	Grab
Copper, Dissolved	1	NA	NL (µg/L)	NA	NA	1/3M	Grab
Hardness, Total (as CaCO ₃)	1	NA	NL (mg/L)	NA	NA	1/3M	Grab
Acute Toxicity – <i>C. variegatus</i> (NOAEC)	1	NA	NA	NA	NL	1/3M	Grab
Acute Toxicity – <i>A. bahia</i> (NOAEC)	1	NA	NA	NA	NL	1/3M	Grab

The basis for the limitations codes are:

1. Best Professional Judgement

2. Water Quality Standards

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/3M = Once every three months.

1/6M = Once every six months.

1/3M = The quarterly monitoring periods shall be January 1 - March 31, April 1 - June 30, July 1 - September 30 and October 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (April 10, July 10, October 10 and January 10, respectively).

1/6M = The semi-annual monitoring period shall be January 1 - June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Total Petroleum Hydrocarbons Requirement:

* Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Dissolved Copper and Total Hardness Requirements:

*Dissolved copper and hardness samples shall be collected concurrently.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

19e. Effluent Limitations/Monitoring Requirements: Outfall 007 (Terminal Range)

Average flow: 0.005167

Sources contributing to the discharge from Outfall 007 include: Storm Water and Gun Mount Sump Water.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MGD)	NA	NL	NA	NA	NL	1/YR	Estimate
pH	2	NA	NA	6.0 S.U.	9.0 S.U.	1/YR	Grab
Total Petroleum Hydrocarbons (TPH)*	1	NA	30 mg/L	NA	NA	1/YR	Grab

The basis for the limitations codes are:

MGD = Million gallons per day.

1/YR = Once every twelve months.

1. Best Professional Judgement

NA = Not applicable.

2. Water Quality Standards

NL = No limit; monitor and report.

S.U. = Standard units.

1/YR = The annual monitoring period shall be January 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (January 10).

Total Petroleum Hydrocarbons Requirement:

* Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

19f. Effluent Limitations/Monitoring Requirements: Outfall 009 (Salt Dome)

Average flow: Variable

Sources contributing to the discharge from Outfall 009 include: Storm water from the following areas - Exposed metal storage (including metal from the machine shop, electronic equipment, gun mounts, metal shavings and chips), outdoor vehicle and equipment storage, and a covered salt dome.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MGD)	NA	NL	NA	NA	NL	1/6M	Estimate
pH	2	NA	NA	6.0 S.U.	9.0 S.U.	1/6M	Grab
Total Petroleum Hydrocarbons (TPH)*	1	NA	30 mg/L	NA	NA	1/6M	Grab
Total Suspended Solids (TSS)	1	NA	60 mg/L	NA	NA	1/6M	Grab
Copper, Dissolved	1	NA	NL (µg/L)	NA	NA	1/6M	Grab
Nickel, Dissolved	1	NA	NL (µg/L)	NA	NA	1/6M	Grab
Zinc, Dissolved	1	NA	NL (µg/L)	NA	NA	1/6M	Grab
Hardness, Total (as CaCO ₃)	1	NA	NL (mg/L)	NA	NA	1/6M	Grab

The basis for the limitations codes are:

1. Best Professional Judgement

2. Water Quality Standards

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Total Petroleum Hydrocarbons Requirement:

* Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Dissolved Copper, Dissolved Nickel, Dissolved Zinc, and Total Hardness Requirements:

*Dissolved copper, dissolved nickel and dissolved zinc and hardness samples shall be collected concurrently.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

19g. Monitoring Requirements: Outfalls 012, 013, and 014

Average flow is variable.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.
Discharges shall be monitored and managed in accordance with Part 1.D of the permit.

20. Other Permit Requirements:

- a) Permit Section Part I.B. contains quantification levels and compliance reporting instructions.
9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.
- b) Permit Section Part I.C. details the requirements for Whole Effluent Toxicity Program.
The VPDES Permit Regulation at 9VAC25-31-210 requires monitoring and 9VAC25-31-220.I, requires limitations in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. A WET Program is imposed for municipal facilities with a design rate >1.0 MGD, with an approved pretreatment program or required to develop a pretreatment program, or those determined by the Board based on effluent variability, compliance history, IWC, and receiving stream characteristics.
- The facility has conducted acute whole effluent toxicity testing at Outfall 002 and Outfall 006 during the 2008 – 2013 permit cycle as required. This testing, required once during the five year permit cycle, was completed in November 2011. A review of toxicity testing data indicates no toxicity for the test species, *C. variegatus* and *M. bahia* (now known as *Americamysis bahia*). Given the presence of copper in the discharge from Outfall 002 and Outfall 006, it is staff's best professional judgement that WET testing once every five years is not adequate to make a determination as to the toxicity of the discharge from these outfalls. As such, acute WET testing shall be increased to a frequency of once per quarter (1/3M) for the first two years of the permit with annual (1/YR) acute testing to be conducted thereafter. The facility shall use *Cyprinodon variegatus* and *Americamysis bahia* as the test species.
- c) Permit Section Part I.D. details the requirements of a Storm Water Management Plan.
Industrial storm water discharges may contain pollutants in quantities that could adversely affect water quality. Storm water discharges which are discharged through a conveyance or outfall are considered point sources and require coverage by a VPDES permit. The primary method to reduce or eliminate pollutants in storm water discharges from an industrial facility is through the use of best management practices (BMPs). Storm Water Management Plan requirements are derived from the VPDES General Permit for Storm Water Discharges Associated with Industrial Activity, 9VAC25-151 et seq.

21. Other Special Conditions:

- a) O&M Manual Requirement. The permittee shall maintain a current Operations and Maintenance (O&M) Manual for the facility that is in accordance with Virginia Pollutant Discharge Elimination System Regulations, 9VAC25-31. The O&M Manual and subsequent revisions shall include the manual effective date and meet Part II.K.2 and Part II.K.4 Signatory Requirements of the permit. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. The permittee shall operate the facility in accordance with the O&M Manual and shall make the O&M manual available to Department personnel for review during facility inspections. Within 30 days of a request by DEQ, the current O&M Manual shall be submitted to the DEQ Northern Regional Office for review and approval.
- b) Notification Levels. The permittee shall notify the Department as soon as they know or have reason to believe:
- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:
- (1) One hundred micrograms per liter;
 - (2) Two hundred micrograms per liter for acrolein and acrylonitrile; five hundred micrograms per

liter for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter for antimony;

- (3) Five times the maximum concentration value reported for that pollutant in the permit application;
or
- (4) The level established by the Board.

b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:

- (1) Five hundred micrograms per liter;
- (2) One milligram per liter for antimony;
- (3) Ten times the maximum concentration value reported for that pollutant in the permit application;

or

- (4) The level established by the Board.

- c) Materials Handling/Storage. 9VAC25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorize the Board to regulate the discharge of industrial waste or other waste.
- d) Water Quality Criteria Reopener. The VPDES Permit Regulation at 9VAC25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should data collected and submitted for Attachment A of the permit, indicate the need for limits to ensure protection of water quality criteria, the permit may be modified or alternately revoked and reissued to impose such water quality-based limitations.
- e) Water Quality Criteria Monitoring. State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, subpart 131.11. To ensure that water quality criteria are maintained, the permittee is required to analyze the facility's effluent from Outfall 009 for the substances noted in Attachment A of this VPDES permit.
- f) PCB Monitoring. The permittee shall conduct PCB monitoring at Outfall 004 using low-level PCB analysis to better understand and characterize potential PCB discharges from this outfall.
- g) BMP Plan. If dissolved copper concentrations at either or both Outfall 002 or Outfall 006 exceed the established monitoring end-point of 19 ug/L during any quarterly monitoring period, the facility shall develop a Best Management Practices (BMP) plan for the reduction of metals contamination. The BMP plan shall be submitted to the Department of Environmental Quality – Northern Regional Office for review and approval within 60 days of submittal of the sampling result to DEQ. Upon approval, the BMP plan becomes an enforceable part of the permit. The permittee shall amend the BMP plan whenever there is a change in the facility or operation of the facility which materially increases the potential to discharge significant amounts of pollutants or if the BMP plan proves to be ineffective in preventing the release of significant amounts of pollutants. Changes to the BMP plan shall be submitted for staff approval within 90 days of the effective date of the changes. Upon approval, the amended BMP plan becomes an enforceable part of the permit.
- h) TMDL Reopener. This special condition is to allow the permit to reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

22. Changes to the Permit from the Previously Issued Permit:**a) Special Conditions:**

1. The O&M special condition has been revised to be consistent with current agency practice.
2. A PCB monitoring special condition has been added to the permit.

b) Monitoring and Effluent Limitations:

1. The TPH footnote now specifies that both TPH-GRO and TPH-DRO are to be measured to calculate TPH.
2. Monitoring for Dissolved Copper, without effluent limitation, has been established at Outfall 003 based on staff's best professional judgement.
3. Low-level PCB monitoring has been established at Outfall 004 to better understand and characterize potential PCB discharges from this outfall.
4. Effluent limitations for TPH, TSS, and pH have been established at Outfall 009 to be consistent with similar discharges from the facility.
5. Monitoring for Dissolved Copper, Dissolved Nickel, and Dissolved Zinc, without effluent limitation, has been added at Outfall 009 based on staff's best professional judgement.
6. Monitoring for Total Hardness has been established at Outfall 002, Outfall 003, Outfall 006, and Outfall 009.
7. Since the previous reissuance, the Toxicity Management Program (TMP) name has changed from TMP to Whole Effluent Toxicity (WET) Program. This change is reflected within the proposed permit to be consistent to with current agency practice.
8. Acute WET testing has been increased from annually at Outfall 002 and Outfall 006 to quarterly for the first two years of the permit cycle with annual WET testing to be conducted thereafter.
9. The test species previously used for acute toxicity testing, *Mysidopsis bahia*, is now known as *Americamysis bahia*.

c) Other:

1. The EPA checklist, found as an attachment to the previous Fact Sheet, is no longer required.
2. Part I.D (Storm Water Monitoring) was updated to reflect the proposed language for inclusion in the 2014 – 2019 VPDES General Permit for Storm Water Discharges Associated with Industrial Activity that allows for sample collection, and quarterly visual monitoring, within the first 30 minutes, or as soon thereafter as practical, but not to exceed three hours.
3. Part II.A (Monitoring) of the permit has been updated to incorporate the Virginia Environmental Laboratory Accreditation Program (VELAP) requirements for laboratory analysis.

23. Variances/Alternate Limits or Conditions: Not Applicable**24. Public Notice Information:**

First Public Notice Date: November 4, 2013

Second Public Notice Date: November 11, 2013

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3853, susan.mackert@deq.virginia.gov. See Attachment 10 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

25. Additional Comments:

Previous Board Action(s): None

Staff Comments:

1. The facility has requested that a composite sample of all actively used sump water at Outfall 002, Outfall 003, and Outfall 007, be permitted to be collected and tested directly should range activities prevent access during rain events. It is staff's best professional judgement that the sump water, while a component of the discharge from the above mentioned outfalls, is not in and of itself representative of the discharge from the outfalls. As such, sump water shall not be composited and analyzed for permit compliance purposes. If range activities prevent access during the monitoring period this shall be noted with the DMR submission along with any available documentation of the range activities.
2. The facility has requested that Outfall 003 be deemed substantially similar to Outfall 002. Given a monitoring end point for copper is proposed with this reissuance for Outfall 002, it is staff's best professional judgement that Outfall 002 and Outfall 003 not be deemed substantially similar at this time.
3. The facility has requested dry weather sampling or an allowance for samples to be collected within 48 hours of a rain event at Outfall 004. Dry weather sampling is not appropriate for storm water discharges. As such, dry weather sampling is not authorized. Storm water language has been updated based on the proposed language for inclusion in the 2014 – 2019 VPDES General Permit for Storm Water Discharges Associated with Industrial Activity that allows for sample collection within the first 30 minutes, or as soon thereafter as practical, but not to exceed three hours. Given samples are only collected once per year from this outfall, it is staff's best professional judgement that samples can be collected within three hours of a discharge.
4. The facility has requested that sampling of the #1 sump at Outfall 007 continue as additional sumps are substantially similar. Staff has no objection to the sampling of the #1 sump.
5. The facility has requested that quarterly visual monitoring at Outfall 012 and Outfall 013 take place within 48 hours of a rain event when range activity does not permit visuals being conducted during a rain event. Storm water language has been updated based on the proposed language for inclusion in the 2014 – 2019 VPDES General Permit for Storm Water Discharges Associated with Industrial Activity that allows for visual observation within the first 30 minutes, or as soon thereafter as practical, but not to exceed three hours. As such, it's staff's best professional judgement that quarterly visual monitoring can be accomplished as required by the permit. If range activities prevent access during the rain event this shall be noted with the quarterly visual monitoring form along with any available documentation of the range activities.

Public Comment: One citizen request for additional information was received on November 7, 2013. The requested information, a copy of the draft permit and application, as well as the fact sheet were provided on November 8, 2013. No further correspondence was received from this citizen.

Fact Sheet Attachments – Table of Contents

Naval Support Facility Dahlgren VA0073636

2013 Reissuance

Attachment 1	NPDES Permit Rating Worksheet
Attachment 2	Topographic Map
Attachment 3	Site Memorandum
Attachment 4	Planning Statement
Attachment 5	Dissolved Oxygen Calculations
Attachment 6	Wasteload Allocation Analysis and Supporting Documentation
Attachment 7	Reasonable Potential Analysis – Outfall 002
Attachment 8	Reasonable Potential Analysis – Outfall 006
Attachment 9	Reasonable Potential Analysis – Outfall 009
Attachment 10	Public Notice

NPDES PERMIT RATING WORK SHEET

VPDES NO. : VA0073636

- ☒ Regular Addition
☐ Discretionary Addition
☐ Score change, but no status Change
☐ Deletion

Facility Name: Naval Support Facility - Dahlgren

City / County: Dahlgren - King George County

Receiving Water: Upper Machodoc Creek / Upper Machodoc Creek, UT / Gambo Creek / Black Marsh, UT

Waterbody ID: VAN-A30E / VAN-A30R / VAN-A30E / VAN-A30R

Is this facility a steam electric power plant (sic =4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
 2. A nuclear power Plant
 3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rater

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

- ☐ YES; score is 700 (stop here)
☒ NO; (continue)

☐ Yes; score is 600 (stop here) ☒ NO; (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: Primary Sic Code: 9711 Other Sic Codes:

Industrial Subcategory Code: 000 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
<input checked="" type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	15	<input type="checkbox"/> 7.	7	35
<input type="checkbox"/> 1.	1	5	<input type="checkbox"/> 4.	4	20	<input type="checkbox"/> 8.	8	40
<input type="checkbox"/> 2.	2	10	<input type="checkbox"/> 5.	5	25	<input type="checkbox"/> 9.	9	45
			<input type="checkbox"/> 6.	6	30	<input type="checkbox"/> 10.	10	50

Code Number Checked: 0

Total Points Factor 1: 0

FACTOR 2: Flow/Stream Flow Volume (Complete either Section A or Section B; check only one)

Section A - Wastewater Flow Only considered

Wastewater Type (see Instructions)	Code	Points
Type I: Flow < 5 MGD	<input type="checkbox"/> 11	0
Flow 5 to 10 MGD	<input type="checkbox"/> 12	10
Flow > 10 to 50 MGD	<input type="checkbox"/> 13	20
Flow > 50 MGD	<input type="checkbox"/> 14	30
Type II: Flow < 1 MGD	<input type="checkbox"/> 21	10
Flow 1 to 5 MGD	<input type="checkbox"/> 22	20
Flow > 5 to 10 MGD	<input type="checkbox"/> 23	30
Flow > 10 MGD	<input type="checkbox"/> 24	50
Type III: Flow < 1 MGD	<input checked="" type="checkbox"/> 31	0
Flow 1 to 5 MGD	<input type="checkbox"/> 32	10
Flow > 5 to 10 MGD	<input type="checkbox"/> 33	20
Flow > 10 MGD	<input type="checkbox"/> 34	30

Section B - Wastewater and Stream Flow Considered

Wastewater Type (see Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow	Code	Points
Type I/III:	< 10 %	<input type="checkbox"/> 41	0
	10 % to < 50 %	<input type="checkbox"/> 42	10
	> 50 %	<input type="checkbox"/> 43	20
Type II:	< 10 %	<input type="checkbox"/> 51	0
	10 % to < 50 %	<input type="checkbox"/> 52	20
	> 50 %	<input type="checkbox"/> 53	30

Code Checked from Section A or B: 31

Total Points Factor 2: 0

NPDES PERMIT RATING WORK SHEET

FACTOR 3: Conventional Pollutants

(only when limited by the permit)

A. Oxygen Demanding Pollutants: (check one) ☐ BOD ☐ COD ☐ Other: _____

Permit Limits: (check one)

- ☐ < 100 lbs/day
☐ 100 to 1000 lbs/day
☐ > 1000 to 3000 lbs/day
☐ > 3000 lbs/day

Code	Points
1	0
2	5
3	15
4	20

Code Number Checked: NA
 Points Scored: 0

B. Total Suspended Solids (TSS)

Permit Limits: (check one)

- ☒ < 100 lbs/day
☐ 100 to 1000 lbs/day
☐ > 1000 to 5000 lbs/day
☐ > 5000 lbs/day

Code	Points
1	0
2	5
3	15
4	20

Code Number Checked: 1
 Points Scored: 0

C. Nitrogen Pollutants: (check one) ☐ Ammonia ☐ Other: _____

Permit Limits: (check one)

- Nitrogen Equivalent*
☐ < 300 lbs/day
☐ 300 to 1000 lbs/day
☐ > 1000 to 3000 lbs/day
☐ > 3000 lbs/day

Code	Points
1	0
2	5
3	15
4	20

Code Number Checked: NA
 Points Scored: 0
 Total Points Factor 3: 0

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this include any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above reference supply.

☐ YES; (If yes, check toxicity potential number below)☒ NO; (If no, go to Factor 5)

Determine the *Human Health* potential from Appendix A. Use the same SIC doe and subcategory reference as in Factor 1. (Be sure to use the *Human Health* toxicity group column – check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
<input type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	0	<input type="checkbox"/> 7.	7	15
<input type="checkbox"/> 1.	1	0	<input type="checkbox"/> 4.	4	0	<input type="checkbox"/> 8.	8	20
<input type="checkbox"/> 2.	2	0	<input type="checkbox"/> 5.	5	5	<input type="checkbox"/> 9.	9	25
			<input type="checkbox"/> 6.	6	10	<input type="checkbox"/> 10.	10	30

Code Number Checked: NA
 Total Points Factor 4: 0

NPDES PERMIT RATING WORK SHEET

FACTOR 5: Water Quality Factors

- A. Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-base federal effluent guidelines, or technology-base state effluent guidelines), or has a wasteload allocation been to the discharge

	Code	Points
<input type="checkbox"/> YES	1	10
<input checked="" type="checkbox"/> NO	2	0

- B. Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?

	Code	Points
<input checked="" type="checkbox"/> YES	1	0
<input type="checkbox"/> NO	2	5

- C. Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?

	Code	Points
<input type="checkbox"/> YES	1	10
<input checked="" type="checkbox"/> NO	2	0

Code Number Checked: A 2 B 1 C 2
 Points Factor 5: A 0 + B 0 + C 0 = 0

FACTOR 6: Proximity to Near Coastal Waters

- A. Base Score: Enter flow code here (from factor 2) 31

Check appropriate facility HPRI code (from PCS):

HPRI#	Code	HPRI Score
<input type="checkbox"/> 1	1	20
<input type="checkbox"/> 2	2	0
<input checked="" type="checkbox"/> 3	3	30
<input type="checkbox"/> 4	4	0
<input type="checkbox"/> 5	5	20

HPRI code checked: 3

Enter the multiplication factor that corresponds to the flow code: _____

Flow Code	Multiplication Factor
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

Base Score (HPRI Score): 30 X (Multiplication Factor) 0.00 = 0

- B. Additional Points -- NEP Program

For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

Code	Points
<input checked="" type="checkbox"/> 1	10
<input type="checkbox"/> 2	0

- C. Additional Points -- Great Lakes Area of Concern

For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 area's of concern (see instructions)? NA

Code	Points
<input type="checkbox"/> 1	10
<input type="checkbox"/> 2	0

Code Number Checked: A 3 B 1 C NA
 Points Factor 6: A 0 + B 10 + C 0 = 10

NPDES PERMIT RATING WORK SHEET

SCORE SUMMARY

<u>Factor</u>	<u>Description</u>	<u>Total Points</u>
1	Toxic Pollutant Potential	0
2	Flows / Streamflow Volume	0
3	Conventional Pollutants	0
4	Public Health Impacts	0
5	Water Quality Factors	0
6	Proximity to Near Coastal Waters	10
TOTAL (Factors 1 through 6)		10

S1. Is the total score equal to or greater than 80 ☐ YES; (Facility is a Major) ☒ NO

S2. If the answer to the above questions is no, would you like this facility to be discretionary major?

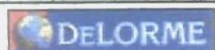
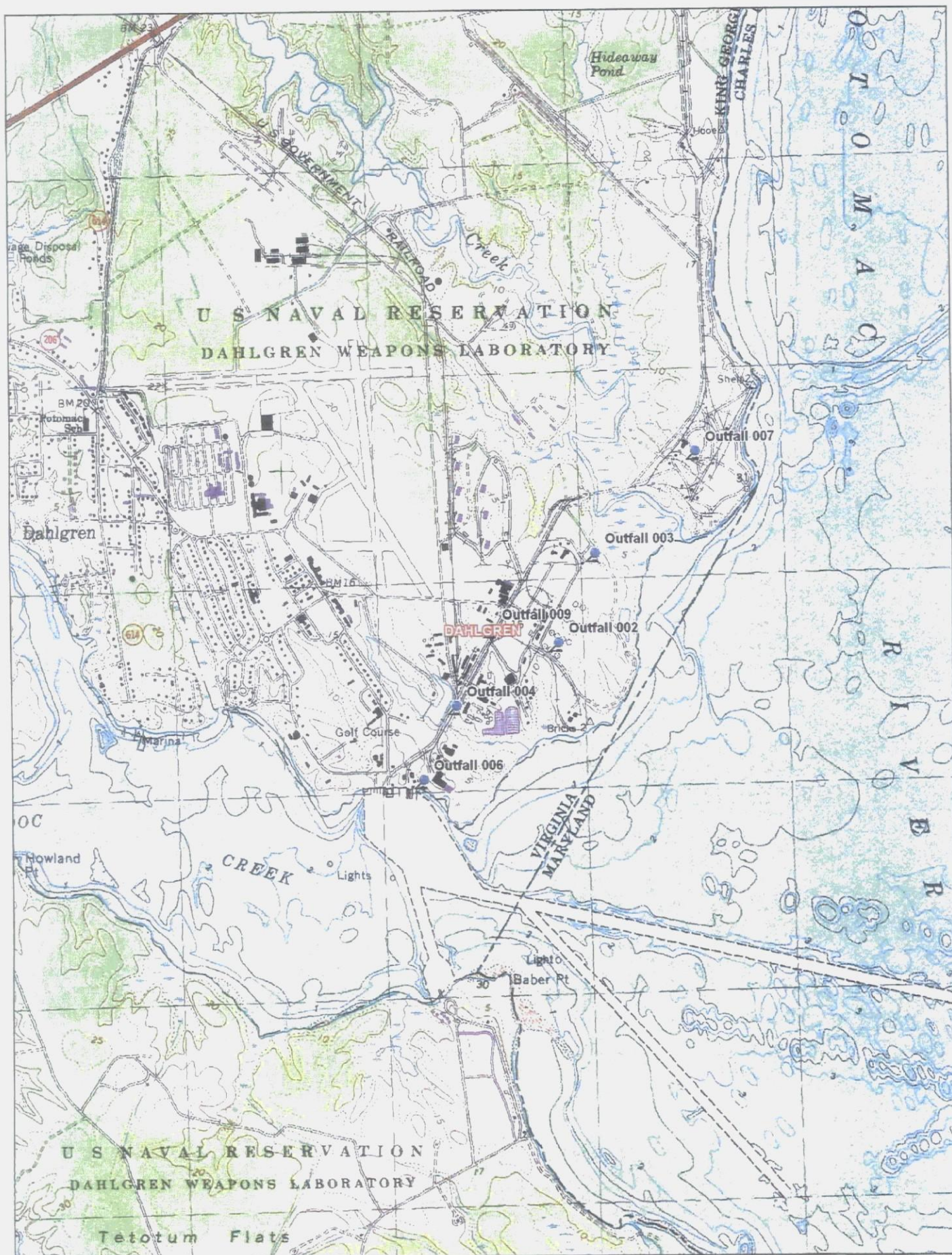
☒ NO

☐ YES; (Add 500 points to the above score and provide reason below:

Reason: _____

NEW SCORE : 10
OLD SCORE : 10

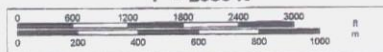
Permit Reviewer's Name : Susan Mackert
Phone Number: (703) 583-3853
Date: July 9, 2013



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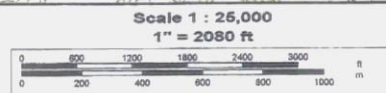
Scale 1 : 25,000

1" = 2080 ft





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MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

13901 Crown Court

Woodbridge, VA 22193

SUBJECT: Reissuance Site Visit
Naval Support Facility Dahlgren (VA0073636)

TO: Permit Reissuance File

FROM: Susan Mackert

DATE: April 3, 2013

REVISED: June 14, 2013

General Site Observations

A site visit was conducted on March 21, 2013, in support of the permit reissuance. Naval Support Facility (NSF) Dahlgren is a used for Defense Research and Development by several Navy and Defense Commands. NSF Dahlgren is comprised of two separate sites: the Mainside, and the Explosive Experimental Area (EEA), known as NSF Pumpkin Neck. Facilities on the Mainside are used primarily for support (e.g., public works, supply, etc.), administration, research and development, housing, and community support activities. The Mainside also houses areas used for air operations and areas where a variety of ordnance categories are tested. NSF Pumpkin Neck contains areas used for a variety of ordnance testing.

A description of the facility's outfalls is provided below. Photos associated with this site memo were taken and provided by NSF Dahlgren staff.

Outfall 002 (Main Range)

The storm water discharged from this outfall is influenced by the industrial activities taking place within the drainage area. The drainage area includes paved surfaces near the triple gun mount and seven below grade gun mount sumps. Water collected in the gun sumps is pumped manually, using a bag filter capable of removing oil residue, or with a float-controlled sump pump. At the time of the site visit, only one gun mount and sump were active. Two thirds of the main range area drains to Outfall 002.

Outfall 003 (North Main Range)

The storm water discharged from this outfall is influenced by the industrial activities taking place within the drainage area. The drainage area includes both paved and unpaved surfaces as well as one below grade gun mount sump. Water collected in the gun sump is pumped manually, using a bag filter capable of removing oil residue, or with a float-controlled sump pump. Additionally, there is an area of material storage to include metal components and railroad ties. One third of the main range area drains (subsurface) to Outfall 003.

Outfall 004 (Cooling Pond)

The storm water discharged from this outfall is influenced by the industrial activities taking place within the drainage area. The drainage area includes both paved and unpaved surfaces within the following areas: transportation, public works, base housing, base administration, labs and other technical operations. The cooling pond formerly supplied non-contact cooling water to two large generators. The generators have been taken out of service and the supply and discharge lines have been severed and capped.

Transformers that have been removed from service are stored within the public works area. The storage area is constructed of concrete and is within a containment berm. The area is graded such that storm water flows to one corner where it can be released for discharge to Outfall 004 by removing a drain plug.

Vehicle maintenance is conducted within enclosed bays. The oil change trough is connected to the sanitary sewer system as well as both the indoor and outdoor car washes.

Outfall 004 (Cooling Pond – Continued)

The facility has two inactive runways which have by default become storage areas for equipment, trailers, extra items, and tires. The runway collection system also drains to Outfall 004.

Outfall 006 (Yard Craft)

The drainage area includes paved and unpaved surfaces near the marina. The marina supports base river range operations. Minor repair and maintenance is conducted indoors and the boats, when not in use, are stored in a grassy area behind the marina. Waste oil and bilge water are collected and recycled.

Changes have been made within the drainage area that increase flow to the outfall, but there has been no addition of industrial activity. NSF Dahlgren has installed a lift station to move storm water runoff from an additional parking area as well as roof drainage. This flow travels through a vegetated swale prior to entering the discharge path for Outfall 006.

This outfall is tidally influenced making collection of a discrete storm water sample difficult. In cases such as this, it is recommended that the sampling point be relocated "upstream" to the next available location where the discharge can be sampled safely and without influence. This is contingent upon no other sources entering the discharge path between the outfall and the relocated sample point which could change the constituents of the discharge. Moving the sampling point for Outfall 006 "up" one manhole will allow NSF Dahlgren staff to collect a more appropriate sample. Flow from an employee parking lot does enter the discharge path between the outfall and the proposed relocated sample point. However, there is already parking lot runoff in the discharge before comingling with this flow. It is staff's best professional judgement that moving the sampling point "up" will not omit a contributing flow.

Outfall 007 (Terminal Range)

The storm water discharged from this outfall is influenced by the industrial activities taking place within the drainage area. The drainage area includes paved surfaces and below-grade gun mount sumps. One below-grade gun mount sump (#1 sump) is active. Three additional sumps are located adjacent to the #1 sump. The additional sumps are considered substantially similar to sump #1. Water collected in the gun sumps is pumped manually, using a bag filter capable of removing oil residue, or with a float-controlled sump pump.

Outfall 009 (Salt Dome)

The storm water discharged from this outfall is influenced by the industrial activities taking place within the drainage area. The drainage area includes exposed metal storage (including metal from the machine shop, electronic equipment, gun mounts, metal shavings and chips), outdoor vehicle and equipment storage, and a covered salt dome.

During the site visit it was noted that the public works lay down area, which is downstream of the sampling point for Outfall 009 but is included in the drainage area for Outfall 009, is not accounted for within the installation's permit. The various activities that take place within this area would have the potential to impact water quality. NSF - Dahlgren staff was asked to investigate the potential for discharge. NSF Dahlgren staff was advised that a new outfall may need to be added to the permit to account for this area, or the sampling point for Outfall 009 adjusted accordingly.

In response to the inquiry on the above lay down area, NSF Dahlgren staff has determined that the lay down area does not drain towards any catchments within the lay down area, but rather towards a large grass field where it infiltrates. Based on this information, it is staff's best professional judgement that no additional outfall is required and the sampling location for Outfall 009 is appropriate.

Outfall 012 (Churchill Range – Pumpkin Neck)

The drainage area includes the southern portion of the Open Burn/Open Detonation explosives test area. This area is a relatively flat piece of land located at NSF Pumpkin Neck. The area includes the Open Burn/Open Detonation (OB/OD) Units and the area used for research, development, testing and evaluation (RDT&E). The OB/OD Units operate under RCRA Subpart X interim status for the treatment of explosive hazardous waste.

Outfall 013 (Churchill Range – Pumpkin Neck)

The drainage area includes the northern portion of the Open Burn/Open Detonation explosives test area. This area is a relatively flat piece of land located at NSF Pumpkin Neck. The area includes the Open Burn/Open Detonation (OB/OD) Units and the area used for research, development, testing and evaluation (RDT&E). The OB/OD Units operate under RCRA Subpart X interim status for the treatment of explosive hazardous waste.

Outfall 014 (AA Fuze Range)

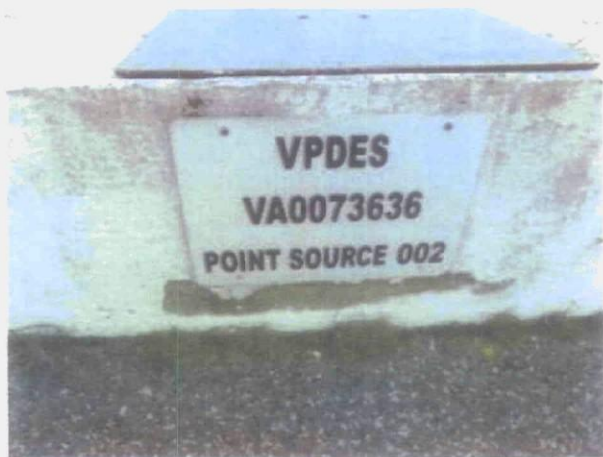
This outfall is being added to the permit with this reissuance. The drainage area includes paved surfaces near the triple gun mount and parking areas. It is staff's best professional judgement that with this reissuance the discharge pipe be recognized within the permit and authorized as a point source discharge. It is unlikely that there would be a discharge from this outfall. However, if there were a discharge it would be comprised of storm water from the aforementioned drainage area. Because discharge is unlikely, the installation will be only required to conduct quarterly visual examinations of storm water quality from this outfall.

DEQ – Minor Industrial Storm Water Permit No. VA0073636

Inspection Data: March 21, 2013

Photographs

Outfall 002



Outfall Point



Collection point and contributing area



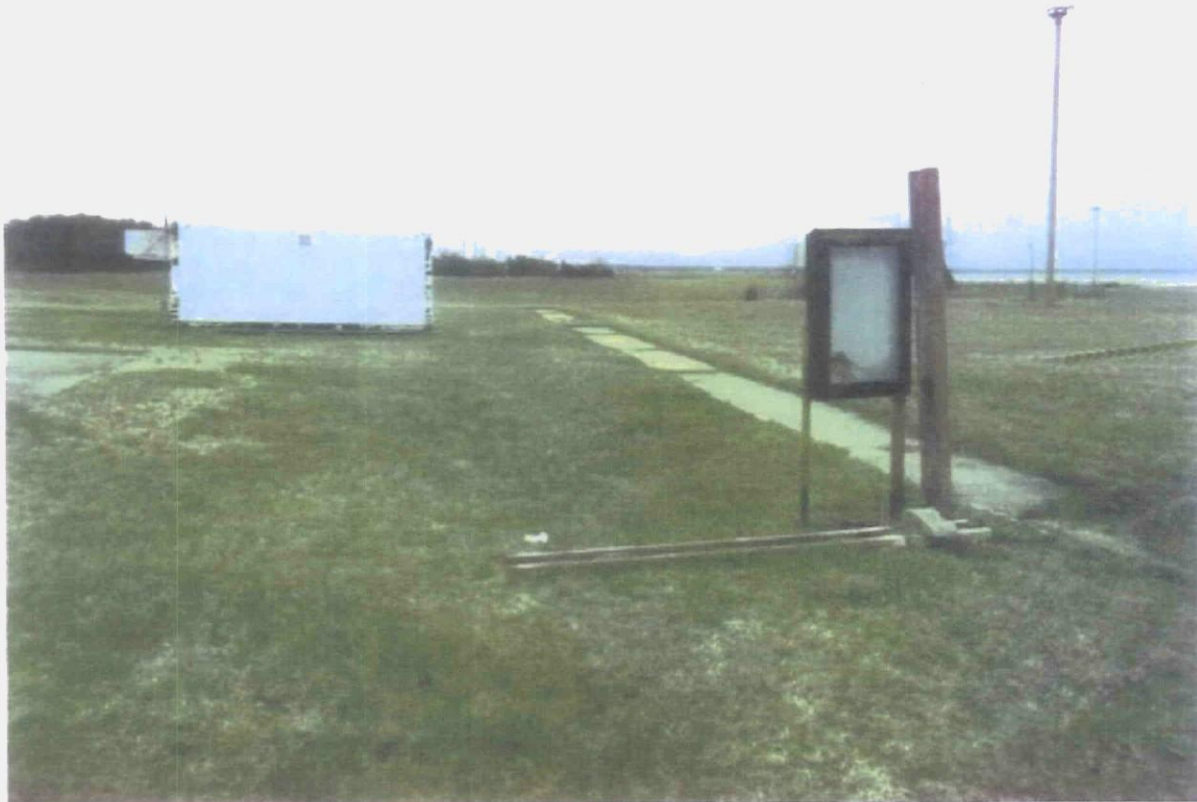
View inside sample point

DEQ – Minor Industrial Storm Water Permit No. VA0073636

Inspection Data: March 21, 2013

Photographs

Outfall 003



Contributing area for outfall 003

DEQ – Minor Industrial Storm Water Permit No. VA0073636

Inspection Data: March 21, 2013

Photographs

Outfall 004



Outfall Point



Sample contributing area

DEQ – Minor Industrial Storm Water Permit No. VA0073636

Inspection Data: March 21, 2013

Photographs

Outfall 006



Sample Collection Point:



Outfall pipe:



Proposed sample collection point, backed up from current point, includes collection swale:



New contributing area:



DEQ – Minor Industrial Storm Water Permit No. VA0073636

Inspection Data: March 21, 2013

Photographs

Outfall 007



Sign and contributing area



Sample point and contributing area



Sample point manhole

DEQ – Minor Industrial Storm Water Permit No. VA0073636

Inspection Data: March 21, 2013

Photographs

Outfall 009



Sample collection point



Sample collection point manhole



Salt Dome (Material Storage)

DEQ – Minor Industrial Storm Water Permit No. VA0073636

Inspection Data: March 21, 2013

Photographs

Outfall 012



Sample collection point and sign

Outfall 013



Outfall sign



Contributing area

DEQ – Minor Industrial Storm Water Permit No. VA0073636

Inspection Data: March 21, 2013

Photographs

SWPP Material Storage Area (associated with Outfall 009)



Public Works laydown

SWPP Material Storage Area (No Outfall)



Runway – identified on SWPP Map for Material Storage

DEQ – Minor Industrial Storm Water Permit No. VA0073636

Inspection Data: March 21, 2013

Photographs

Additional Areas Observed:



Fuse Rd. area, parking discharge point

SWPP BMP Devise



Double walled and lidded grease recycling and spill kit

Mackert, Susan (DEQ)

From: Carlson, Jennifer (DEQ)
Sent: Friday, March 15, 2013 12:47 PM
To: Mackert, Susan (DEQ)
Cc: Conaway, Katie (DEQ); Thomas, Bryant (DEQ)
Subject: RE: Planning Statement Request - Dahlgren (VA0073636)
Attachments: VA0073636 Planning Statement.docx

Hi Susan,

Attached is the completed planning statement for NSF - Dahlgren. I updated the coordinates for each outfall based on the locations noted on the maps enclosed with the application. Please let me know if there are any questions or if something needs to be changed following your visit to the facility next week.

Thanks,
Jen

From: Mackert, Susan (DEQ)
Sent: Wednesday, January 23, 2013 2:41 PM
To: Carlson, Jennifer (DEQ)
Subject: Planning Statement Request - Dahlgren (VA0073636)

Hi Jen,

Please find attached a planning statement request for Naval Support Facility – Dahlgren. Please let me know if you have any questions or need anything additional.

Thanks,
Susan

To: Susan Mackert
From: Jennifer Carlson

Date: March 15, 2013
Subject: Planning Statement for Naval Support Facility - Dahlgren
Permit Number: VA0073636

Information for Outfalls: See last page of document

Discharge Type:
Discharge Flow:
Receiving Stream:
Latitude / Longitude:
Rivermile:
Streamcode:
Waterbody:
Water Quality Standards:
Drainage Area:

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

- A. Outfalls 002 and 006 discharge to the northern tidal portion of Upper Machodoc Creek. The following is the water quality summary for tidal Upper Machodoc Creek, as taken from the Draft 2012 Integrated Assessment*:

Class II, Section 2, special stds. a.

Assessment of the submerged aquatic vegetation (SAV) acreage indicates that the shallow-water submerged aquatic vegetation subuse is not met; the aquatic life use is considered not supporting. A TMDL has been completed for the Chesapeake Bay watershed. For the open water aquatic life subuse; the thirty day mean is acceptable, however, the seven day mean and instantaneous levels have not been assessed.

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. A PCB TMDL for the tidal Potomac River watershed has been completed and approved.

The recreation and wildlife uses were not assessed. The shellfishing use has been removed

Outfalls 004 and 009 discharge to an unnamed tributary to Upper Machodoc Creek, which has not been monitored or assessed by DEQ. This unnamed tributary flows into the northern portion of tidal Upper Machodoc Creek. Water quality information for the northern tidal Upper Machodoc Creek is presented above.

- B. Outfall 013 discharges to an unnamed tributary to Upper Machodoc Creek, located in the southern portion of the embayment. This unnamed tributary has not been monitored or assessed by DEQ. The following is the water quality information for the southern portion of tidal Upper Machodoc Creek, as taken from the Draft 2012 Integrated Assessment*:

Class II, Section 2, special stds. a.

Assessment of the submerged aquatic vegetation (SAV) acreage indicates that the shallow-water submerged aquatic vegetation subuse is not met; the aquatic life use is considered not supporting. A TMDL has been completed for the Chesapeake Bay watershed. For the open water aquatic life subuse; the thirty day mean is acceptable, however, the seven day mean and instantaneous levels have not been assessed. Additionally, for the deep-water subuse, the thirty day mean is acceptable, however, the one day mean and instantaneous dissolved oxygen levels have not been assessed. Finally, an observed effect was noted for the aquatic life use, as an excursion above the estuarine NOAA-based ER-M sediment screening value (SV) of 7 ppb (dry weight) for DDT in sediment was detected during a sampling event at station 1aUMC001.36 in 2004.

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory and fish tissue monitoring. Additionally, excursions above the fish tissue values (TV) of 300 ppb for mercury (Hg) and 270 ppb for arsenic (As) were recorded in 2004 at monitoring station 1aUMC001.36, both in tissue from white perch, noted by observed effects for the fish consumption use. A PCB TMDL for the tidal Potomac River watershed has been completed and approved.

The shellfishing use is considered fully supporting.

The recreation and wildlife uses were not assessed.

- C. Outfalls 003 and 007 discharge to the tidal portion of Gambo Creek. The following is the water quality summary for tidal Gambo Creek, as taken from the Draft 2012 Integrated Assessment*:

Class II, Section 2, special stds. a.

Assessment of the submerged aquatic vegetation (SAV) acreage indicates that the shallow-water submerged aquatic vegetation subuse is not met; the aquatic life use is considered not supporting. A TMDL has been completed for the Chesapeake Bay watershed. For the open water aquatic life subuse; the thirty day mean is acceptable, however, the seven day mean and instantaneous levels have not been assessed.

The fish consumption, recreation, and wildlife uses were not assessed.

- D. Outfall 012 discharges to an unnamed tributary to Black Swamp. Neither this unnamed tributary nor Black Swamp has been monitored by DEQ. Black Swamp flows into the mesohaline tidal Potomac River, which is monitored and assessed by the State of Maryland. The following information is found in Maryland's Water Quality Assessment 2012 Integrated Report:

The Lower Potomac River mesohaline segment is listed as not supporting the aquatic life and wildlife use, based upon poor Benthic IBI scores. A TMDL will be required.

Also, this segment of the mesohaline Potomac River is listed for the following subcategories and pollutants:

1. Open-Water Fish and Shellfish - phosphorus and nitrogen
2. Seasonal Migratory Fish Spawning and Nursery - phosphorus and nitrogen
3. Seasonal Deep-Water Fish and Shellfish - phosphorus and nitrogen
4. Seasonal Deep-Channel Refuge - phosphorus and nitrogen
5. Seasonal Shallow-Water Submerged Aquatic Vegetation – total suspended solids

The completed Chesapeake Bay TMDL addresses the above listed nutrient and sediment impairments.

**Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.*

2. Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A.

Yes. Water Quality Impairment and TMDL information is presented in this table for tidal Upper Machodoc Creek and tidal Gambo Creek. Although Upper Machodoc Creek is not the direct receiving waterbody for Outfalls 004, 009, and 013, the information presented in this table for Upper Machodoc Creek is applicable for those outfalls for the downstream impairment and TMDL information.

Table A. 303(d) Impairment and TMDL information for the receiving stream segment

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in the Draft 2012 Integrated Report*							
Upper Machodoc Creek	Fish Consumption	PCBs	004 – 0.29 mi 009 – 0.5 mi 013 – 0.3 mi	Tidal Potomac River PCB 10/31/2007	None	---	N/A
	Aquatic Life	Aquatic Plants (Macrophytes)		Chesapeake Bay TMDL 12/29/2010	This facility is accounted for in the Chesapeake Bay TMDL. It is included in the NPDES Permit Inventory and is part of an aggregated WLA for Total Nitrogen, Total Phosphorus, and Total Suspended Solids (Appendix Q).		
Gambo Creek	Aquatic Life	Aquatic Plants (Macrophytes)	---	Chesapeake Bay TMDL 12/29/2010			

**Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.*

3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B.

Yes. The Potomac River is downstream of all the facility Outfalls.

Table B. Information on Downstream 303(d) Impairments and TMDLs

Waterbody Name	Impaired Use	Cause	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in Maryland's 2012 Integrated Report						
Potomac River	Open-Water Fish and Shellfish	Total Nitrogen and Total Phosphorus	Chesapeake Bay TMDL 12/29/2010		This facility is accounted for in the Chesapeake Bay TMDL. It is included in the NPDES Permit Inventory and is part of an aggregated WLA for Total Nitrogen, Total Phosphorus, and Total Suspended Solids (Appendix Q).	
	Seasonal Migratory Fish Spawning and Nursery					
	Seasonal Deep-Water Fish and Shellfish					
	Seasonal Deep-Channel Refuge					
	Seasonal Shallow-Water Submerged Aquatic Vegetation	Total Suspended Solids				

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

The tidal portion of Upper Machodoc Creek is listed with a PCB impairment. Due to this PCB impairment, this facility is a candidate for low-level PCB monitoring, based upon its designation as an industrial facility. Low-level PCB analysis uses EPA Method 1668, which is capable of detecting low-level concentrations for all 209 PCB congeners. DEQ staff has concluded that low-level PCB monitoring is not warranted for this facility, as there is no expectation that PCBs would be present in the discharge drainage areas.

5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.

There are no public water supply intakes within a 5 mile radius of any of the listed outfalls.

Naval Support Facility - Dahlgren Outfall Descriptions

Receiving Stream	Streamcode and Waterbody	Water Quality Standards	Outfall	Discharge Type	Discharge Flow	Lat/Lon	Rivermile	Drainage Area (mi ²)
Upper Machodoc Creek	1aUMC --- VAN-A30E	Class II Section 2 Special Stds. a	002	Industrial Process and Storm Water	0.00725 MGD	38° 19' 31.9" / -77° 01' 35.7"	0.17	0.008
			006	Industrial Storm Water	Variable	38° 19' 11.2" / -77° 02' 2.2"	0.43	0.008
Upper Machodoc Creek, UT	1aXMO --- VAN-A30R	Class III Section 2a	004	Industrial Process and Storm Water	0.175 MGD	38° 19' 21.9" / -77° 01' 56.3"	0.29	0.17
			009	Industrial Storm Water	Variable	38° 19' 34.4" / -77° 01' 48.7"	0.05	0.015
Upper Machodoc Creek, UT	1aXMP --- VAN-A30R	Class III Section 2a	013	Industrial Storm Water	Variable	38° 18' 20" / -77° 02' 0.3"	0.3	0.014
Gambo Creek	1aGAM --- VAN-A30E	Class II Section 2 Special Stds. a	003	Industrial Process and Storm Water	0.00833 MGD	38° 19' 45.7" / -77° 01' 28"	0.15	0.007
			007	Industrial Process and Storm Water	0.005167 MGD	38° 20' 1.8" / -77° 01' 7.4"	0.31	0.001
Black Marsh, UT	1aXMN --- VAN-A30R	Class III Section 1a	012	Industrial Storm Water	Variable	38° 18' 9.5" / -77° 01' 56"	0.47	0.032

Dissolved Oxygen Criteria (9VAC25-260-185)

Designated Use	Criteria Concentration/Duration	Temporal Application
Migratory fish spawning and nursery	7-day mean > 6 mg/L (tidal habitats with 0-0.5 ppt salinity)	February 1 – May 31
	Instantaneous minimum > 5 mg/L	
Open-water ^{1,2}	30-day mean > 5.5 mg/L (tidal habitats with 0-0.5 ppt salinity)	Year-round
	30-day mean > 5 mg/L (tidal habitats with >0.5 ppt salinity)	
	7-day mean > 4 mg/L	
	Instantaneous minimum > 3.2 mg/L at temperatures < 29°C	
	Instantaneous minimum > 4.3 mg/L at temperatures > 29°C	
Deep-water	30-day mean > 3 mg/L	June 1-September 30
	1-day mean > 2.3 mg/L	
	Instantaneous minimum > 1.7 mg/L	
Deep-channel	Instantaneous minimum > 1 mg/L	June 1-September 30

¹See subsection aa of 9VAC25-260-310 for site specific seasonal open-water dissolved oxygen criteria applicable to the tidal Mattaponi and Pamunkey Rivers and their tidal tributaries.

²In applying this open-water instantaneous criterion to the Chesapeake Bay and its tidal tributaries where the existing water quality for dissolved oxygen exceeds an instantaneous minimum of 3.2 mg/L, that higher water quality for dissolved oxygen shall be provided antidegradation protection in accordance with section 30 subsection A.2 of the Water Quality Standards.

SALTWATER AND TRANSITION ZONES

WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: NSF - Dahlgren
Receiving Stream: Upper Machodoc Creek

Permit No.: VA0073636

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO₃) = 50 mg/l
90th % Temperature (Annual) = 25 °C
90th % Temperature (Winter) = °C
90th % Maximum pH = 8
10th % Maximum pH =
Tier Designation (1 or 2) = 1
Early Life Stages Present Y/N = Y
Tidal Zone = 1 (1 = saltwater, 2 = transition zone)
Mean Salinity = 4.17 (g/kg)

Mixing Information

Design Flow (MGD) 0
Acute WLA multiplier 2
Chronic WLA multiplier 50
Human health WLA multiplier 50

Effluent Information

Mean Hardness (as CaCO₃) = 50 mg/L
90 % Temperature (Annual) = 25 °C
90 % Temperature (Winter) = °C
90 % Maximum pH = 8 SU
10 % Maximum pH = SU
Discharge Flow = 0 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
Acenaphthene	0	--	--	9.9E+02	--	--	5.0E+04	--	--	--	--	--	--	--	--	5.0E+04
Acrolein		--	--	9.3E+00	--	--	4.7E+02	--	--	--	--	--	--	--	--	4.7E+02
Acrylonitrile ^c		--	--	2.5E+00	--	--	1.3E+02	--	--	--	--	--	--	--	--	1.3E+02
Aldrin ^c	0	1.3E+00	--	5.0E-04	2.6E+00	--	2.5E-02	--	--	--	--	--	--	2.6E+00	--	2.5E-02
Ammonia-N (mg/l) - Annual	0	3.60E+00	5.48E-01	--	7.21E+00	2.74E+01	--	--	--	--	--	--	--	7.21E+00	2.74E+01	--
Ammonia-N (mg/l) - Winter	0	2.22E+01	3.38E+00	--	4.44E+01	1.69E+02	--	--	--	--	--	--	--	4.44E+01	1.69E+02	--
Anthracene	0	--	--	4.0E+04	--	--	2.0E+06	--	--	--	--	--	--	--	--	2.0E+06
Antimony	0	--	--	6.4E+02	--	--	3.2E+04	--	--	--	--	--	--	--	--	3.2E+04
Arsenic	0	6.9E+01	3.6E+01	--	1.4E+02	1.8E+03	--	--	--	--	--	--	--	1.4E+02	1.8E+03	--
Benzene ^c	0	--	--	5.1E+02	--	--	2.6E+04	--	--	--	--	--	--	--	--	2.6E+04
Benzidine ^c		--	--	2.0E-03	--	--	1.0E-01	--	--	--	--	--	--	--	--	1.0E-01
Benzo (a) anthracene ^c	0	--	--	1.8E-01	--	--	9.0E+00	--	--	--	--	--	--	--	--	9.0E+00
Benzo (b) fluoranthene ^c	0	--	--	1.8E-01	--	--	9.0E+00	--	--	--	--	--	--	--	--	9.0E+00
Benzo (k) fluoranthene ^c	0	--	--	1.8E-01	--	--	9.0E+00	--	--	--	--	--	--	--	--	9.0E+00
Benzo (a) pyrene ^c	0	--	--	1.8E-01	--	--	9.0E+00	--	--	--	--	--	--	--	--	9.0E+00
Bis2-Chloroethyl Ether ^c	0	--	--	5.3E+00	--	--	2.7E+02	--	--	--	--	--	--	--	--	2.7E+02
Bis2-Chloroisopropyl Ether	0	--	--	6.5E+04	--	--	3.3E+06	--	--	--	--	--	--	--	--	3.3E+06
Bis2-Ethylhexyl Phthalate ^c	0	--	--	2.2E+01	--	--	1.1E+03	--	--	--	--	--	--	--	--	1.1E+03
Bromoform ^c	0	--	--	1.4E+03	--	--	7.0E+04	--	--	--	--	--	--	--	--	7.0E+04
Butylbenzylphthalate	0	--	--	1.9E+03	--	--	9.5E+04	--	--	--	--	--	--	--	--	9.5E+04
Cadmium	0	4.0E+01	8.8E+00	--	8.0E+01	4.4E+02	--	--	--	--	--	--	--	8.0E+01	4.4E+02	--
Carbon Tetrachloride ^c	0	--	--	1.6E+01	--	--	8.0E+02	--	--	--	--	--	--	--	--	8.0E+02
Chlordane ^c	0	9.0E-02	4.0E-03	8.1E-03	1.8E-01	2.0E-01	4.1E-01	--	--	--	--	--	--	1.8E-01	2.0E-01	4.1E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
TRC	0			--			--	--	--	--	--	--	--	--	--	--
Chlorine Prod. Oxidant	0	1.3E+01	7.5E+00	--	2.6E+01	3.8E+02	--	--	--	--	--	--	--	2.6E+01	3.8E+02	--
Chlorobenzene		--	--	1.6E+03	--	--	8.0E+04	--	--	--	--	--	--	--	--	8.0E+04
Chlorodibromomethane ^c	0	--	--	1.3E+02	--	--	6.5E+03	--	--	--	--	--	--	--	--	6.5E+03
Chloroform	0	--	--	1.1E+04	--	--	5.5E+05	--	--	--	--	--	--	--	--	5.5E+05
2-Chloronaphthalene	0	--	--	1.6E+03	--	--	8.0E+04	--	--	--	--	--	--	--	--	8.0E+04
2-Chlorophenol	0	--	--	1.5E+02	--	--	7.5E+03	--	--	--	--	--	--	--	--	7.5E+03
Chlorpyrifos	0	1.1E-02	5.6E-03	--	2.2E-02	2.8E-01	--	--	--	--	--	--	--	2.2E-02	2.8E-01	--
Chromium III	0			--			--	--	--	--	--	--	--	--	--	--
Chromium VI	0	1.1E+03	5.0E+01	--	2.2E+03	2.5E+03	--	--	--	--	--	--	--	2.2E+03	2.5E+03	--
Chrysene ^c	0	--	--	1.8E-02	--	--	9.0E-01	--	--	--	--	--	--	--	--	9.0E-01
Copper	0	9.3E+00	6.0E+00	--	1.9E+01	3.0E+02	--	--	--	--	--	--	--	1.9E+01	3.0E+02	--
Cyanide, Free	0	1.0E+00	1.0E+00	1.6E+04	2.0E+00	5.0E+01	8.0E+05	--	--	--	--	--	--	2.0E+00	5.0E+01	8.0E+05
DDD ^c	0	--	--	3.1E-03	--	--	1.6E-01	--	--	--	--	--	--	--	--	1.6E-01
DDE ^c	0	--	--	2.2E-03	--	--	1.1E-01	--	--	--	--	--	--	--	--	1.1E-01
DDT ^c	0	1.3E-01	1.0E-03	2.2E-03	2.6E-01	5.0E-02	1.1E-01	--	--	--	--	--	--	2.6E-01	5.0E-02	1.1E-01
Demeton	0	--	1.0E-01	--	--	5.0E+00	--	--	--	--	--	--	--	--	5.0E+00	--
Diazinon	0	8.2E-01	8.2E-01	--	1.6E+00	4.1E+01	--	--	--	--	--	--	--	1.6E+00	4.1E+01	--
Dibenz(a,h)anthracene ^c	0	--	--	1.8E-01	--	--	9.0E+00	--	--	--	--	--	--	--	--	9.0E+00
1,2-Dichlorobenzene	0	--	--	1.3E+03	--	--	6.5E+04	--	--	--	--	--	--	--	--	6.5E+04
1,3-Dichlorobenzene	0	--	--	9.6E+02	--	--	4.8E+04	--	--	--	--	--	--	--	--	4.8E+04
1,4-Dichlorobenzene	0	--	--	1.9E+02	--	--	9.5E+03	--	--	--	--	--	--	--	--	9.5E+03
3,3-Dichlorobenzidine ^c	0	--	--	2.8E-01	--	--	1.4E+01	--	--	--	--	--	--	--	--	1.4E+01
Dichlorobromomethane ^c	0	--	--	1.7E+02	--	--	8.5E+03	--	--	--	--	--	--	--	--	8.5E+03
1,2-Dichloroethane ^c	0	--	--	3.7E+02	--	--	1.9E+04	--	--	--	--	--	--	--	--	1.9E+04
1,1-Dichloroethylene	0	--	--	7.1E+03	--	--	3.6E+05	--	--	--	--	--	--	--	--	3.6E+05
1,2-trans-dichloroethylene	0	--	--	1.0E+04	--	--	5.0E+05	--	--	--	--	--	--	--	--	5.0E+05
2,4-Dichlorophenol	0	--	--	2.9E+02	--	--	1.5E+04	--	--	--	--	--	--	--	--	1.5E+04
1,2-Dichloropropane ^c	0	--	--	1.5E+02	--	--	7.5E+03	--	--	--	--	--	--	--	--	7.5E+03
1,3-Dichloropropene ^c	0	--	--	2.1E+02	--	--	1.1E+04	--	--	--	--	--	--	--	--	1.1E+04
Dieldrin ^c	0	7.1E-01	1.9E-03	5.4E-04	1.4E+00	9.5E-02	2.7E-02	--	--	--	--	--	--	1.4E+00	9.5E-02	2.7E-02
Diethyl Phthalate	0	--	--	4.4E+04	--	--	2.2E+06	--	--	--	--	--	--	--	--	2.2E+06
2,4-Dimethylphenol	0	--	--	8.5E+02	--	--	4.3E+04	--	--	--	--	--	--	--	--	4.3E+04
Dimethyl Phthalate	0	--	--	1.1E+06	--	--	5.5E+07	--	--	--	--	--	--	--	--	5.5E+07
Di-n-Butyl Phthalate	0	--	--	4.5E+03	--	--	2.3E+05	--	--	--	--	--	--	--	--	2.3E+05
2,4 Dinitrophenol	0	--	--	5.3E+03	--	--	2.7E+05	--	--	--	--	--	--	--	--	2.7E+05
2-Methyl-4,6-Dinitrophenol	0	--	--	2.8E+02	--	--	1.4E+04	--	--	--	--	--	--	--	--	1.4E+04
2,4-Dinitrotoluene ^c	0	--	--	3.4E+01	--	--	1.7E+03	--	--	--	--	--	--	--	--	1.7E+03
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.1E-08	--	--	2.6E-06	--	--	--	--	--	--	--	--	2.6E-06
1,2-Diphenylhydrazine ^c	0	--	--	2.0E+00	--	--	1.0E+02	--	--	--	--	--	--	--	--	1.0E+02
Alpha-Endosulfan	0	3.4E-02	8.7E-03	8.9E+01	6.8E-02	4.4E-01	4.5E+03	--	--	--	--	--	--	6.8E-02	4.4E-01	4.5E+03

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
Beta-Endosulfan	0	3.4E-02	8.7E-03	8.9E+01	6.8E-02	4.4E-01	4.5E+03	--	--	--	--	--	--	6.8E-02	4.4E-01	4.5E+03
Alpha + Beta Endosulfan	0	3.4E-02	8.7E-03	--	6.8E-02	4.4E-01	--	--	--	--	--	--	--	6.8E-02	4.4E-01	--
Endosulfan Sulfate	0	--	--	8.9E+01	--	--	4.5E+03	--	--	--	--	--	--	--	--	4.5E+03
Endrin	0	3.7E-02	2.3E-03	6.0E-02	7.4E-02	1.2E-01	3.0E+00	--	--	--	--	--	--	7.4E-02	1.2E-01	3.0E+00
Endrin Aldehyde	0	--	--	3.0E-01	--	--	1.5E+01	--	--	--	--	--	--	--	--	1.5E+01
Ethylbenzene	0	--	--	2.1E+03	--	--	1.1E+05	--	--	--	--	--	--	--	--	1.1E+05
Fluoranthene	0	--	--	1.4E+02	--	--	7.0E+03	--	--	--	--	--	--	--	--	7.0E+03
Fluorene	0	--	--	5.3E+03	--	--	2.7E+05	--	--	--	--	--	--	--	--	2.7E+05
Guthion	0	--	1.0E-02	--	--	5.0E-01	--	--	--	--	--	--	--	--	5.0E-01	--
Heptachlor ^C	0	5.3E-02	3.6E-03	7.9E-04	1.1E-01	1.8E-01	4.0E-02	--	--	--	--	--	--	1.1E-01	1.8E-01	4.0E-02
Heptachlor Epoxide ^C	0	5.3E-02	3.6E-03	3.9E-04	1.1E-01	1.8E-01	2.0E-02	--	--	--	--	--	--	1.1E-01	1.8E-01	2.0E-02
Hexachlorobenzene ^C	0	--	--	2.9E-03	--	--	1.5E-01	--	--	--	--	--	--	--	--	1.5E-01
Hexachlorobutadiene ^C	0	--	--	1.8E+02	--	--	9.0E+03	--	--	--	--	--	--	--	--	9.0E+03
Hexachlorocyclohexane Alpha-BHC ^C	0	--	--	4.9E-02	--	--	2.5E+00	--	--	--	--	--	--	--	--	2.5E+00
Hexachlorocyclohexane Beta-BHC ^C	0	--	--	1.7E-01	--	--	8.5E+00	--	--	--	--	--	--	--	--	8.5E+00
Hexachlorocyclohexane Gamma-BHC ^C (Lindane)	0	1.6E-01	--	1.8E+00	3.2E-01	--	9.0E+01	--	--	--	--	--	--	3.2E-01	--	9.0E+01
Hexachlorocyclopentadiene	0	--	--	1.1E+03	--	--	5.5E+04	--	--	--	--	--	--	--	--	5.5E+04
Hexachloroethane ^C	0	--	--	3.3E+01	--	--	1.7E+03	--	--	--	--	--	--	--	--	1.7E+03
Hydrogen Sulfide	0	--	2.0E+00	--	--	1.0E+02	--	--	--	--	--	--	--	--	1.0E+02	--
Indeno (1,2,3-cd) pyrene C	0	--	--	1.8E-01	--	--	9.0E+00	--	--	--	--	--	--	--	--	9.0E+00
Isophorone ^C	0	--	--	9.6E+03	--	--	4.8E+05	--	--	--	--	--	--	--	--	4.8E+05
Kepone	0	--	0.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00	--
Lead	0	2.4E+02	9.3E+00	--	4.8E+02	4.7E+02	--	--	--	--	--	--	--	4.8E+02	4.7E+02	--
Malathion	0	--	1.0E-01	--	--	5.0E+00	--	--	--	--	--	--	--	--	5.0E+00	--
Mercury	0	1.8E+00	9.4E-01	--	3.6E+00	4.7E+01	--	--	--	--	--	--	--	3.6E+00	4.7E+01	--
Methyl Bromide	0	--	--	1.5E+03	--	--	7.5E+04	--	--	--	--	--	--	--	--	7.5E+04
Methylene Chloride ^C	0	--	--	5.9E+03	--	--	3.0E+05	--	--	--	--	--	--	--	--	3.0E+05
Methoxychlor	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
Mirex	0	--	0.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00	--
Nickel	0	7.4E+01	8.2E+00	4.6E+03	1.5E+02	4.1E+02	2.3E+05	--	--	--	--	--	--	1.5E+02	4.1E+02	2.3E+05
Nitrobenzene	0	--	--	6.9E+02	--	--	3.5E+04	--	--	--	--	--	--	--	--	3.5E+04
N-Nitrosodimethylamine ^C	0	--	--	3.0E+01	--	--	1.5E+03	--	--	--	--	--	--	--	--	1.5E+03
N-Nitrosodiphenylamine ^C	0	--	--	6.0E+01	--	--	3.0E+03	--	--	--	--	--	--	--	--	3.0E+03
N-Nitrosodi-n-propylamine ^C	0	--	--	5.1E+00	--	--	2.6E+02	--	--	--	--	--	--	--	--	2.6E+02
Nonylphenol	0	7.0E+00	1.7E+00	--	1.4E+01	8.5E+01	--	--	--	--	--	--	--	1.4E+01	8.5E+01	--
Parathion	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB Total ^C	0	--	3.0E-02	6.4E-04	--	1.5E+00	3.2E-02	--	--	--	--	--	--	--	1.5E+00	3.2E-02
Pentachlorophenol ^C	0	1.3E+01	7.9E+00	3.0E+01	2.6E+01	4.0E+02	1.5E+03	--	--	--	--	--	--	2.6E+01	4.0E+02	1.5E+03

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
Phenol	0	--	--	8.6E+05	--	--	4.3E+07	--	--	--	--	--	--	--	--	4.3E+07
Phosphorus (Elemental)	0	--	1.0E-01	--	--	5.0E+00	--	--	--	--	--	--	--	--	5.0E+00	--
Pyrene	0	--	--	4.0E+03	--	--	2.0E+05	--	--	--	--	--	--	--	--	2.0E+05
Selenium	0	2.9E+02	7.1E+01	4.2E+03	5.8E+02	3.6E+03	2.1E+05	--	--	--	--	--	--	5.8E+02	3.6E+03	2.1E+05
Silver	0	1.9E+00	--	--	3.8E+00	--	--	--	--	--	--	--	--	3.8E+00	--	--
1,1,2,2-Tetrachloroethane ^C	0	--	--	4.0E+01	--	--	2.0E+03	--	--	--	--	--	--	--	--	2.0E+03
Tetrachloroethylene ^C	0	--	--	3.3E+01	--	--	1.7E+03	--	--	--	--	--	--	--	--	1.7E+03
Thallium	0	--	--	4.7E-01	--	--	2.4E+01	--	--	--	--	--	--	--	--	2.4E+01
Toluene	0	--	--	6.0E+03	--	--	3.0E+05	--	--	--	--	--	--	--	--	3.0E+05
Toxaphene ^C	0	2.1E-01	2.0E-04	2.8E-03	4.2E-01	1.0E-02	1.4E-01	--	--	--	--	--	--	4.2E-01	1.0E-02	1.4E-01
Tributyltin	0	4.2E-01	7.4E-03	--	8.4E-01	3.7E-01	--	--	--	--	--	--	--	8.4E-01	3.7E-01	--
1,2,4-Trichlorobenzene	0	--	--	7.0E+01	--	--	3.5E+03	--	--	--	--	--	--	--	--	3.5E+03
1,1,2-Trichloroethane ^C	0	--	--	1.6E+02	--	--	8.0E+03	--	--	--	--	--	--	--	--	8.0E+03
Trichloroethylene ^C	0	--	--	3.0E+02	--	--	1.5E+04	--	--	--	--	--	--	--	--	1.5E+04
2,4,6-Trichlorophenol ^C	0	--	--	2.4E+01	--	--	1.2E+03	--	--	--	--	--	--	--	--	1.2E+03
Vinyl Chloride ^C	0	--	--	2.4E+01	--	--	1.2E+03	--	--	--	--	--	--	--	--	1.2E+03
Zinc	0	9.0E+01	8.1E+01	2.6E+04	1.8E+02	4.1E+03	1.3E+06	--	--	--	--	--	--	1.8E+02	4.1E+03	1.3E+06

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. For transition zone waters, spreadsheet prints the lesser of the freshwater and saltwater water quality criteria.
6. Regular WLA = (WQC x WLA multiplier) - (WLA multiplier - 1)(background conc.)
7. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
8. Antideg. WLA = (Antideg. Baseline)(WLA multiplier) - (WLA multiplier - 1)(background conc.)

Site Specific	
Metal	Target Value (SSTV)
Antimony	3.2E+04
Arsenic III	5.5E+01
Cadmium	3.2E+01
Chromium III	#VALUE!
Chromium VI	8.8E+02
Copper	7.4E+00
Lead	1.9E+02
Mercury	1.4E+00
Nickel	5.9E+01
Selenium	2.3E+02
Silver	1.5E+00
Zinc	7.2E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

VA0073636 NSF Dahlgren - Ambient Data (2008-2013)

Date	Parameter Description	Concentration
1/30/08	Salinity (g/kg)	7.38
4/24/08	Salinity (g/kg)	1.35
6/26/08	Salinity (g/kg)	1.63
8/21/08	Salinity (g/kg)	7.54
10/30/08	Salinity (g/kg)	8.16
12/9/08	Salinity (g/kg)	8.82
1/21/09	Salinity (g/kg)	5.21
3/17/09	Salinity (g/kg)	4.54
5/14/09	Salinity (g/kg)	1.8
7/8/09	Salinity (g/kg)	3.73
9/1/09	Salinity (g/kg)	7.62
11/23/09	Salinity (g/kg)	3.54
1/28/10	Salinity (g/kg)	1.92
3/25/10	Salinity (g/kg)	0.14
5/19/10	Salinity (g/kg)	1.9
6/1/10	Salinity (g/kg)	2.48
7/29/10	Salinity (g/kg)	7.99
9/23/10	Salinity (g/kg)	10.55
11/17/10	Salinity (g/kg)	7.54
1/10/11	Salinity (g/kg)	4.79
3/7/11	Salinity (g/kg)	3.04
5/9/11	Salinity (g/kg)	1.03
6/28/11	Salinity (g/kg)	2.49
8/30/11	Salinity (g/kg)	1.37
11/7/11	Salinity (g/kg)	1.8
1/9/12	Salinity (g/kg)	0.72
3/6/12	Salinity (g/kg)	0.27
5/16/12	Salinity (g/kg)	3.63
7/5/12	Salinity (g/kg)	5.41
9/5/12	Salinity (g/kg)	7.95
11/15/12	Salinity (g/kg)	6.26
2/28/13	Salinity (g/kg)	3.21
4/3/13	Salinity (g/kg)	3.72
6/24/13	Salinity (g/kg)	2.32

Mean Salinity = 4.17 g/kg

VA0073636 NSF - Dahlgren Effluent Copper Data

Due*	Outfall	Parameter Description	Concentration Minimum	Limit Minimum	Concentration Maximum	Limit Maximum	Comments
1/10/10	002	Copper (µg/L)	21	NL	21	NL	DMR
1/10/11	002	Copper (µg/L)	82.7	NL	82.7	NL	DMR
1/10/12	002	Copper (µg/L)	8.1	NL	8.1	NL	DMR
1/10/13	002	Copper (µg/L)	16	NL	16	NL	DMR

*DMR reporting is required on an annual basis. The sample due date reflects the copper sample collected during the previous year. Because only one sample is required per year, only the concentration maximum value was used in limit derivation.

7/5/2013 12:05:10 PM

Facility = NSF - Dahlgren
Chemical = Copper - Outfall 002
Chronic averaging period = 4
WLAa = 19
WLAc = 300
Q.L. = 7.4
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 4
Expected Value = 31.95
Variance = 367.488
C.V. = 0.6
97th percentile daily values = 77.7476
97th percentile 4 day average = 53.1580
97th percentile 30 day average = 38.5334
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 19
Average Weekly limit = 19
Average Monthly Limit = 19

The data are:

21
82.7
8.1
16

VA0073636 NSF - Dahlgren Effluent Copper Data

Due*	Outfall	Parameter Description	Concentration Minimum	Limit Minimum	Concentration Maximum	Limit Maximum	Comments
1/10/10	006	Copper (µg/L)	23	NL	23	NL	DMR
1/10/11	006	Copper (µg/L)	26	NL	26	NL	DMR
1/10/12	006	Copper (µg/L)	19	NL	19	NL	DMR
1/10/13	006	Copper (µg/L)	17	NL	17	NL	DMR

*DMR reporting is required on an annual basis. The sample due date reflects the copper sample collected during the previous year. Because only one sample is required per year, only the concentration maximum value was used in limit derivation.

7/5/2013 12:06:29 PM

Facility = NSF - Dahlgren
Chemical = Copper - Outfall 006
Chronic averaging period = 4
WLAa = 19
WLAc = 300
Q.L. = 7.4
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 4
Expected Value = 21.25
Variance = 162.562
C.V. = 0.6
97th percentile daily values = 51.7101
97th percentile 4 day average = 35.3555
97th percentile 30 day average = 25.6286
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 19
Average Weekly limit = 19
Average Monthly Limit = 19

The data are:

23
26
19
17

VA0073636 NSF - Dahlgren Effluent Arsenic Data

Date	Outfall	Parameter Description	Concentration	Comments
9/23/11	009	Arsenic (µg/L)	1.8	Attachment A
10/20/12	009	Arsenic (µg/L)	< 3.0	Attachment A

7/26/2013 11:33:01 AM

Facility = NSF - Dahlgren
Chemical = Arsenic - Outfall 009
Chronic averaging period = 4
WLAa = 140
WLAc = 1800
Q.L. = 55
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 2
Expected Value =
Variance =
C.V. =
97th percentile daily values =
97th percentile 4 day average =
97th percentile 30 day average =
< Q.L. = 2
Model used =

No Limit is required for this material

The data are:

1.8
0

VA0073636 NSF - Dahlgren Effluent Copper Data

Date	Outfall	Parameter Description	Concentration	Comments
9/23/11	009	Copper (µg/L)	7.6	Attachment A
10/20/12	009	Copper (µg/L)	5.0	Attachment A

7/8/2013 1:27:40 PM

Facility = NSF - Dahlgren
Chemical = Copper - Outfall 009
Chronic averaging period = 4
WLAa = 19
WLAc = 300
Q.L. = 7.4
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 2
Expected Value = 8.62980
Variance = 26.8104
C.V. = 0.6
97th percentile daily values = 20.9999
97th percentile 4 day average = 14.3581
97th percentile 30 day average = 10.4080
< Q.L. = 1
Model used = BPJ Assumptions, Type 1 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 19
Average Weekly limit = 19
Average Monthly Limit = 19

The data are:

7.6
5

VA0073636 NSF - Dahlgren Effluent Lead Data

Date	Outfall	Parameter Description	Concentration	Comments
9/23/11	009	Lead (µg/L)	0.95	Attachment A
10/20/12	009	Lead (µg/L)	1.5	Attachment A

7/8/2013 1:29:07 PM

Facility = NSF - Dahlgren
Chemical = Lead
Chronic averaging period = 4
WLAa = 480
WLAc = 470
Q.L. = 190
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 2
Expected Value =
Variance =
C.V. =
97th percentile daily values =
97th percentile 4 day average = 14.3581
97th percentile 30 day average = 10.4080
< Q.L. = 2
Model used =

No Limit is required for this material

The data are:

0.95
1.5

VA0073636 NSF - Dahlgren Effluent Mercury Data

Date	Outfall	Parameter Description	Concentration	Comments
9/23/11	009	Mercury (µg/L)	< 0.20	Attachment A
10/20/12	009	Mercury (µg/L)	0.23	Attachment A

7/26/2013 11:34:16 AM

Facility = NSF - Dahlgren
Chemical = Mercury - Outfall 009
Chronic averaging period = 4
WLAa = 3.6
WLAc = 47
Q.L. = 1.4
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 2
Expected Value =
Variance =
C.V. =
97th percentile daily values =
97th percentile 4 day average =
97th percentile 30 day average =
< Q.L. = 2
Model used =

No Limit is required for this material

The data are:

0
0.23

VA0073636 NSF - Dahlgren Effluent Nickel Data

Date	Outfall	Parameter Description	Concentration	Comments
9/23/11	009	Nickel (µg/L)	1.6	Attachment A
10/20/12	009	Nickel (µg/L)	2.1	Attachment A

7/9/2013 7:44:57 AM

Facility = Dahlgren
Chemical = Nickel - Outfall 009
Chronic averaging period = 4
WLAa = 150
WLAc = 410
Q.L. = 0.5
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 2
Expected Value = 1.85
Variance = 1.2321
C.V. = 0.6
97th percentile daily values = 4.50182
97th percentile 4 day average = 3.07801
97th percentile 30 day average = 2.23119
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

1.6
2.1

VA0073636 NSF - Dahlgren Effluent Zinc Data

Date	Outfall	Parameter Description	Concentration	Comments
9/23/11	009	Zinc (µg/L)	29	Attachment A
10/20/12	009	Zinc (µg/L)	46	Attachment A

7/9/2013 8:00:02 AM

Facility = Dahlgren
Chemical = Zinc - Outfall 009
Chronic averaging period = 4
WLAa = 180
WLAc = 4100
Q.L. = 2.0
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 2
Expected Value = 37.5
Variance = 506.25
C.V. = 0.6
97th percentile daily values = 91.2531
97th percentile 4 day average = 62.3921
97th percentile 30 day average = 45.2269
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

29
46

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of storm water into a water body in King George, Virginia.

PUBLIC COMMENT PERIOD: November 5, 2013 to December 4, 2013

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Storm water issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: United States Department of the Navy, 18329 Thompson Road, Suite 226, Dahlgren, VA 22448, VA0073636

NAME AND ADDRESS OF FACILITY: Naval Support Facility Dahlgren, 18329 Thompson Road, Suite 226, Dahlgren, VA 22448

PROJECT DESCRIPTION: The United States Department of the Navy has applied for a reissuance of a permit for the federal Naval Support Facility Dahlgren installation. The applicant proposes to release storm water at varying rates into two water bodies. The facility proposes to storm water in Upper Machodoc Creek, an unnamed tributary to Upper Machodoc Creek, Gambo Creek, and an unnamed tributary to Black Marsh in King George County in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, Total Suspended Solids, and Total Petroleum Hydrocarbons. The permit will monitor the following pollutants to protect water quality: Dissolved Copper, Dissolved Nickel, Dissolved Zinc, Total Hardness, Polychlorinated Biphenyls, and Acute Toxicity using *C. variegatus* and *A. bahia* as the test species.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by hand-delivery, e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.

Name: Susan Mackert

Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193

Phone: (703) 583-3853 E-mail: susan.mackert@deq.virginia.gov Fax: (703) 583-3821